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BIOLOGIA
CENTRALI-AMERICANA.

INSECTA.

LEPIDOPTERA-RHOPALOCERA.

VOL. II.

(TEXT.)

BY

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WITH A NOTE ON THE GROUP EUMÆIDI,

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BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class INSECTA.

Order LEPIDOPTERA.

Suborder RHOPALOCERA.

Fam. LYCÆNIDÆ.

Though the species of Lycænidæ are exceedingly numerous in the New World, their number probably being not far short of those of all the rest of the world put together, they do not present anything like the same amount of diversity as regards their structure.

The comprehensive genus *Thecla* as understood in its wide sense includes nearly all the neotropical Lycænidæ. *Lycæna*, by which we mean the Blues (*Cupido* of Kirby's catalogue), is represented by a few species only, and there are some aberrant forms to which we refer below. As in the case of the Erycinidæ, we have prepared a large number of specimens for microscopical examination, and from these we have examined the neuration of the wings, the legs, the labial palpi, and the secondary sexual organs, and from the unprepared specimens the form of the wings, the antennæ, and the arrangement of the frontal scales; and from the characters found we have built up the arrangement which follows. We now briefly discuss them seriatim.

The antennæ.—The form of the club in the antennæ in *Thecla* is variable, being as a rule less prominent in those species which we have placed at the beginning of the genus than in those which come towards the end. The number of joints, too, also varies; in *T. regalis* we count 39, in *T. herodotus* only 29, other species have intermediate numbers; *Lycæna acmon* has 31. In *Thecla* and its allies a few spines are scattered amongst the scales of all the joints, but in *Lycæna* we do not notice any.

The palpi.—The third or terminal joint of the palpi varies greatly in the different species and very often in the sexes of the same species, being longer in the female than

in the male; the tubular pit at the distal end seems to be always present. We have made use, in a subsidiary sense, of the difference in the length of the terminal joint in the sexes; but the gradation between different species in this respect is so complete, that the character is not available for any higher division.

The eyes.—In both sections of the family of which we are treating the eyes are in all cases more or less hairy. In a majority of cases the hairs are numerous and very distinct; but in others they are much less plainly visible and more sparsely distributed, and the extent of their presence does not furnish any satisfactory points for classification.

The frontal scales.—The head between the eyes is clothed with scales; as a rule, those in the upper portion are directed downwards until we come close to the base of the palpi, where their direction is reversed. With the flattened scales, narrow hair-like scales are more or less freely intermingled. Certain species depart from this rule—the hair-like scales in some wholly disappearing; in others the upward direction of the scales prevails throughout the space between the eyes. We have used these divergencies in our classification, giving it, we believe, thereby a natural aspect.

The legs.—The front legs throughout this family present, as a rule, very little diversity. In the male the tarsal joints are all fused into one piece, the claws are absent, but the under surface is furnished with strong spines, which at the proximal end are oblique, but towards the distal end become more transverse, the terminal spines standing at right angles to the axis of the tarsus. The trochanter is attached to the end of the coxa, except in the Old-World genus *Curetis*, where the coxa projects slightly beyond the trochanter, somewhat as in the family Erycinidæ. In the genus *Theclopsis*, described below, we have a singular departure from the usual structure of the male front leg, every joint being complete, and the terminal joint furnished with claws and the usual appendages of a perfect foot. So unusual a divergence from the ordinary type surprises us not a little, the outward resemblance of the species to the ordinary type of *Thecla* being complete. Still we cannot but suppose that similar structures remain to be discovered when more extensive researches are made. We have not noticed any characters in the other legs of the male, nor in any of those of the female, to help us in our classification.

The shape of the wings.—So far as *Thecla* is concerned, the shape of the wings is profoundly modified in the various species; a stronger contrast than exists between the primaries of *T. damo* and *T. syncellus* is hardly to be found elsewhere in the Rhopalocera. But not only does *T. damo* vary individually in this respect, but every intermediate gradation is to be found in the genus; moreover, as is so often the case in other families, the males have more pointed wings than the females. Regarding the secondaries, the shape of the anal angle, the extent to which it is produced, and the development of the anal lobe seem to us to afford tangible grounds for division; but we do not profess to be satisfied with the system we have adopted, the exceptions being

not a few nor unimportant. The anal lobe in some cases is divided from the rest of the margin by a cleft of greater or less depth; this has proved a useful character, though it obviously fails in some cases.

The filaments which are attached to the margins of the secondaries offer the greatest diversity in the extent of their development and are at their maximum in *T. cypria* and its allies, evanescent in *T. eurytulus*, and wholly absent in such varied species as *T. gadira*, *T. agricolor*, and *T. agra*. As a rule, they are more fully developed in the female than in the male. When only one is present it is attached to the end of the first median branch; when there are two the second proceeds from the second median branch. They are an extension of the membrane which lies between the nervures of the wing, and are furnished with ciliæ similar to the outer margin; but they receive no support from the nervules to which they are attached, as the latter do not enter them, but stop short at the margin of the wing. So varied are these filaments in their development, that we only see our way to make use of them in our classification in a very subordinate sense.

The neururation of wings.—The species of the fauna of which we are now treating divide themselves into two groups: in one the subcostal nervure of the primaries emits two branches, in the other three; the former contains *Thecla* and its immediate allies, the latter the Blues (*Lycæna*) and the peculiar form we describe below. As regards the branches themselves it is only amongst the Blues that we find any very special characters. In such species as *L. comyntas* the first branch coalesces for some distance with the costal, and diverges again towards the margin; in *L. exilis* the union is complete to the end of the costal nervure. In *Thecla*, in by far the majority of cases, both branches are emitted before the end of the cell. Regarding the upper discocellulars, the presence or absence of which is dependent on whether the middle discocellular meets the upper radial or the subcostal, there is considerable diversity. As a rule, in those species which have a stigma or brand at the end of the cell it is plainly visible, whilst in those which have not this brand it is very short or absent.

The alar stigma.—We have used this term to designate a peculiar patch of closely matted scales found widely, but not universally, distributed throughout the genera *Thecla* and *Theclopsis*. It consists of a circular patch of such scales situated usually at the end of the cell of the primaries, and there is frequently a second similar patch beyond it. They are found only in the male sex, and when present have considerable influence in modifying the relative position of the nervures in that portion of the wing. In not a few species a somewhat similar spot occurs, consisting of dark scales placed at the distal end of the cell, but they are not matted as in the true stigma, nor do they influence the neururation. It not unfrequently happens that, where no stigma occurs, at the end of the cell a peculiar arrangement of scales is found on the under surface of the primaries below the median nervure, and sometimes there is likewise a corresponding patch on the secondaries between the costal and subcostal nervures. Other

points in connection with this subject should be noticed—such as a tuft of bristles, as in *T. caranus*, between the submedian and internal nervures of the secondaries beneath; and, again, a tuft of hairs, as in *T. pion*, on the subcostal nervure of the secondaries above. In another group, represented by *T. mavors*, there is a fold in the membrane of the wing near the submedian nervure. To all these points we have given more or less importance in our classification, and we believe with a tolerably natural result.

The secondary sexual organs.—So far as regards the group having a two-branched subcostal nervure, these organs are more uniform in their structure than is the case in any other family of Butterflies we have as yet investigated. The tegumen is like that of the Erycinidæ, being a hood-like structure having a setose lateral lobe on either side, beneath which proceed two strong hooks, curved at first inwards and then outwards, sometimes overlapping one another: the harpagones are long, subtriangular, and pointed outwards; they are, as a rule, setose on the outer surface. The penis varies chiefly in length. In some species, notably in the genus *Eumæus*, on either side of the sexual claspers is a pencil of long hairs, which are attached to the skin uniting the claspers to the eighth segment of the body, and are covered by it when they are withdrawn. Unfortunately these pencils are not diagnostic of *Eumæus*, for we find them in various stages of development throughout the genus *Thecla*: moreover it seems probable that in some cases our mode of preparation may so destroy their colour as to render them invisible; we have therefore not used them for purposes of classification. Regarding the female, we notice that in some species the bursa copulatrix is furnished with a pair of chitinous patches, similar to those we noticed in some members of the family Erycinidæ. In most cases they are shaped like the thorn of a briar, in others they present a serrate edge. The duct leading to the bursa is a chitinous tube, more or less strongly developed.

Since the publication of Westwood and Hewitson's 'Genera of Diurnal Lepidoptera,' no attempt has been made to compile a comprehensive account of the family Lycænidæ, but an important step in that direction has been recently taken by Mr. Distant in his 'Rhopalocera Malayana.' It is true that Hewitson, in his 'Illustrations of Diurnal Lepidoptera,' described and figured a vast number of these Butterflies; but they cannot be said to be classified in the true sense of the word; for in his treatment of the genus *Thecla* the arrangement of the species has been to a great extent determined by the growth of his collection, and the dates at which the many new species came to hand. Nor can Mr. Kirby's catalogue be treated as a serious attempt to classify this complicated family. The species of *Thecla* in this case, in the supplement to the body of the work, are, to a large extent, treated alphabetically.

Mr. Distant's work is of a wholly different character, and is a laudable attempt to reduce to order the 100 species of which he treats. These he places under no less than thirty-eight genera, giving diagnostic tables, whereby they may be recognized one from the other, his characters being largely supplied by the neuration of the wings. After

carefully examining his system, we do not see our way to arrange our American species on the same plan. To divide *Thecla* into genera chiefly upon neuration could hardly give a satisfactory result; moreover, by our process of dissection, which we have also applied to a large number of Old-World genera, we notice characters in them which have not yet been taken into account, and which must influence considerably any future exhaustive re-arrangement of the family. To attempt such an arrangement is evidently beyond the scope of a faunistic work like the present; in the meantime we put forward such points that are illustrated by the species of our fauna as we trust will be of service in constructing a complete system. Mr. Distant has been bringing forward materials, we have been doing the same, all of which we trust will form part of the building to be erected hereafter.

I. Subcostal nervure of the primaries with two branches.

A. Front legs of the male with a single-jointed tarsus and no claws.

a. Secondaries rounded, the anal angle not projecting.

EUMÆUS.

Eumæus, Hübner, Verz. bek. Schmett. p. 67 (1816); Westw. Gen. Diurn. Lep. p. 469; Scudder, Mem. Bost. Soc. N. H. ii. p. 413.

The most recent contribution to our knowledge of this genus is given by Mr. Scudder in his paper on the structure and transformations of *Eumæus atala*, where he enters very fully on the systematic position of the genus, and its treatment in this respect by previous writers. The conclusion he arrives at, largely from an examination of the larval stages, is that there should be a family Eumæidæ, and that it should stand between the Erycinidæ and Lycænidæ. So far as regards the larval stages of this and other Lycænidæ, we have no material to follow him; but we may remark that our knowledge at present of the early stages of these insects is so exceedingly small compared with their numbers, that though accurate descriptions are very desirable, the time has hardly come to test their value as to classification.

We have no doubt ourselves that *Eumæus* belongs strictly to the Lycænidæ. The structure of the fore legs of the male at once determines this point; the fusion of the tarsal joints into a single cylindrical joint and the position of the spines thereon, together with the trochanter joining the coxa at the extremity of the latter, are, we think, conclusive on this point; nay, further, so closely is *Eumæus* connected with *Thecla* in all essential points of structure that we acknowledge that we have not satisfactorily produced characters whereby the two may be sharply defined. That *Eumæus* is a natural genus we have no manner of doubt, and it is due rather to the extreme diversity prevailing in *Thecla* that salient points of distinction seem to fail us.

We recognize but three species of this genus, though several others have been

suggested. *E. minyas* is common, and has a wide distribution from Southern Texas and Mexico to the Amazon region, varying somewhat in that wide area. *E. debora* is restricted to Southern Mexico and Guatemala, and *E. atala* to Cuba and the peninsula of Florida.

The subcostal nervure of *E. minyas* emits two branches before the end of the cell; there is no upper discocellular, but the middle discocellular meets the subcostal halfway between the origin of the second branch and the upper radial, it is partially atrophied throughout its length, the cell is narrow, the subcostal and median sides being subequal; the lower discocellular of the secondaries makes a large acute angle with the median; the upper discocellular is about half the length of the lower, in a line with it, partially atrophied, and meets the subcostal some way beyond the origin of its branch, the costal side of the cell is considerably shorter than the median side. The front legs of the male have a single-jointed tarsus $=\frac{2}{3}$ tibia, densely clothed with spines beneath, which are placed obliquely towards the proximal end, and gradually become more transverse towards the distal end; the tibia, too, is spiny for the distal half of its length, and has a pair of strong spines close to the tibio-tarsal joint. On the median legs towards the proximal end of the tibia, and again on the distal end of the femur, are two patches of hair; the palpi are slender, the terminal joint $=\frac{1}{3}$ middle joint in male, and $\frac{1}{2}$ in the female. The antennæ are but slightly clubbed; there are 40 joints, and besides the covering of scales there are intermingled with them a few scattered spines. The eyes are nearly naked, having a few long sparsely-scattered hairs, chiefly towards the proximal margin.

The tegumen in the secondary sexual organs is normal, being hood-shaped, with a depression in the margin on the middle line, and a lobe on either side, setose on its outer surface; there is also a strong hook on either side, at first directed backwards and then curved outwards, the points slightly overlapping.

The harpagones are small, subelliptical, with a short projecting setose lobe at the distal end. On either side of these organs is a pencil of strong closely-set hairs, which, when not extended, lie between the eighth abdominal segment and the secondary sexual organs.

In the female the middle discocellular of the primaries meets the subcostal close to its junction with the upper radial; the front legs have the distal end of the tibia and the five tarsal joints armed with strong spines on the under surface, the terminal joint is about equal to the third and fourth together. The bursa copulatrix has no chitinous patches.

1. *Eumæus minyas*. (Tab. XLVIII. figg. 1, 2 ♂, 3 ♀.)

Rusticus adolescens minyas, Hübn. Samml. ex. Schm. i. t. 96¹.

Eumenia godartii, Boisd. Lép. Guat. p. 13².

Eumenia toxana, Boisd. Lép. Guat. p. 13³.

♂ alis nigris, anticis cellula et inter venas cæruleo atomatis; posticis maculis septem submarginalibus viridi-aureis: subtus fusco-nigricantibus, posticis maculis viridi-aureis in seriebus tribus submarginalibus positis, maculis extimis venis nigris bisectis; ciliis albis; macula ad medium marginis interni et abdomine infra rubidis; fronte utrinque albido, macula inter antennis aliisque ad palporum basin coloris ejusdem.

♀ mari similis, sed colore cæruleo magis restricto.

Hab. MEXICO (*Sallé*), Jalapa, Cordova (*Höge*), mountains of Oaxaca (*Fenochio*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, R. Hondo (*Blancaneaux*), Corosal (*Roe*); GUATEMALA, Choctum, Polochic valley, Rio Chisoy (*F. D. G. & O. S.*), Panima, Cahabon (*Champion*); COSTA RICA (*Van Patten*), Irazu (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Lion Hill (*M'Leannan*).—SOUTH AMERICA, from Colombia to Eastern Peru and Upper Amazons.

We notice great diversity in the size of the specimens before us, some of our Guatemalan examples being very diminutive. Our largest are from Costa Rica and Panama, where we notice a further difference, the blue or blue-green colour on the upper surface of the wings of the male being more generally distributed, and the apex of the primaries of the females is sprinkled with white scales. In the Amazons valley the female has no green on the upper surface of the wings.

E. minyas is a common species in the lowlands of Guatemala; but we have no record of it from the forest-country bordering the Pacific.

Guatemalan specimens are figured, the male from Purula, and the female from the valley of the Polochic river.

2. *Eumæus debora*.

Eumæus debora, Hüb. Samml. ex. Schmett. iii. t. —. ¹.

Eumenia childrenæ, Gray, in Griff. An. Kingd. xv. p. 677, t. 112 ².

♂ alis nigris, anticis stria cellulari aliisque ad costam viridi-cyaneis, maculis ad marginem externum viridi-aureis, ciliis albis: subtus nigris undique viridi-aureo maculatis, alis ambabus macula cellulari cyanea.

♀ mari similis.

Hab. MEXICO ^{1 2} (*Sallé*), Jalapa (*Höge*), Cordova (*Rümeli*), mountains of Oaxaca (*Fenochio*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

This is almost exclusively a Mexican species, its presence in Guatemala being only known to us from a single specimen taken in the valley of the Polochic. The general distribution of the spots on the under surface of the wings and the absence of red on the inner margin of the secondaries and on the abdomen beneath render this species easily recognized from *E. minyas*. The eyes, too, appear to be more densely hairy.

THEOREMA.

Theorema, Hew. Ill. Diurn. Lep. p. 69.

The differences separating this genus from *Eumæus* are small, and should it be

deemed expedient eventually to divide the Lycænidae into a small number of genera *Eumæus* will, in all probability, include *Theorema*.

The neururation of the primaries is almost exactly that of *E. debora*, the cell being somewhat wider, and the first subcostal branch being emitted nearer the base of the wing; there is a single marginal filament attached to the end of the first median branch of the secondaries; the front legs of the male are less strongly spined beneath. The bursa copulatrix of the female has two slender chitinous spines.

Theorema is represented by the single species the distribution of which is given below.

1. ***Theorema eumenia*.** (Tab. XLVIII. figg. 4 ♂, 5, 6 ♀.)

Theorema eumenia, Hew. Ill. Diurn. Lep. p. 69, t. 27. ff. 1, 2¹.

Theorema titania, Strecker, Proc. Ac. Phil. 1885, p. 176².

♂ alis cyaneis ad marginem externum viridescentibus; anticis costa et margine externo nigris; posticis costa late, angulum apicalem vero haud attingente quoque nigris; ciliis albis: subtus fuliginoso-nigris; anticis ad apicem dense et ad marginem externum albo atomatis, margine ipso nigro, fascia arcuata partem cellulæ inferioris occupante deinde ad angulum analem producta late cyanea; posticis triente distali argenteo-albo maculatis, maculis in seriebus tribus positis, maculis submarginalibus lunulatis cum linea submarginali junctis literas **D** formantibus.

♀ anticis viridi-cæruleis; costa, apice late et plaga magna discali nigris, apice ipso albo atomato; posticis litura lata submarginali (venis divisa) aurea: subtus mari similis, fascia arcuata cyanea nulla.

Hab. GUATEMALA, Polochic valley, Choctum (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Gabb*²); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Lion Hill (*M^cLeannan*).—COLOMBIA.

Hewitson described this species from a Colombian specimen, a male. We have since obtained several examples of both sexes from various parts of Central America, and the female has recently been described by Mr. Strecker, under the name of *Theorema titania*.

We notice some variation in the females as regards the white marking at the apex of the primaries, which is very obvious in the specimen we have described from Nicaragua; in one from Guatemala it is wholly absent, whilst in the State of Panama we find both forms.

A male and a female from Chontales, Nicaragua, are figured.

B. Anal angle of secondaries more or less projecting beyond the curve of the outer margin.

THECLA.

Thecla, Fabricius, Ill. Mag. vi. p. 286; Westw. Gen. Diurn. Lep. p. 481; Hew. Ill. Diurn. Lep. p. 69.

It is open to question whether the generic name *Thecla* is strictly applicable to the

American species of Lycænidæ, for which it has been so freely used. Fabricius includes eight species in *Thecla*, of which he names three, *T. betulæ*, *T. spini*, and *T. quercus*; and it is only by considering *T. spini* the type that the species with two subcostal branches can be called *Thecla*, *T. betulæ* and *T. quercus* having three such branches. Hewitson restricted *Thecla* to the two-branched section, and placed in it several hundred South-American species, with a large number of which we now have to deal, as well as with many additional ones. So long as the genus *Thecla* remains undivided, the convenience of the application of the name in Hewitson's sense is obvious, and we continue its use as heretofore. We have seriously considered the question whether or no the genus should be divided into a number of genera, and this, at first sight, would seem to be the proper course; but on looking closely at the gradual modification of nearly all the available characters, we have come to the conclusion that if divisions be once commenced they would have to be carried to such an extent that the result would be far more confusing than the present state of things. Hübner, the great genus-maker of his day, undoubtedly proposed many names for genera now included under *Thecla* by Hewitson; but his combinations are by no means satisfactory, though these names may be made use of under some future arrangement; but we cannot too strongly urge that nothing should be attempted in this direction without an examination of carefully-prepared specimens, and not in the rough-and-ready method usually adopted. We have made many such preparations, which have enabled us to examine several points with great minuteness; they have served to show us that many more are necessary before an adequate knowledge can be obtained for satisfactorily grouping the various species.

As we have already dealt with the main features of the genus *Thecla* in our notes under the head of Lycænidæ, it remains to state approximately the number of species comprised in the genus, though it is difficult to make an exact estimate. Mr. Kirby's final Appendix, published in 1877, gives the number 541, and a good many species have been added since that; so if we place their present number at 600 or 700, we probably shall not be far wrong. Of these about twenty belong to the Old World. About forty species are found in the United States, some of which occur also within our borders. We have therefore about 550 species in the Neotropical Region, as far as our present knowledge goes, a number which will probably be largely increased by future research.

Within our own country we now recognize about 209 species which are widely distributed over the whole area, though their numbers are doubtless far greater in the hotter districts, for in Northern and Central Mexico, which still remain to be searched, there are comparatively few.

a. Interocular space covered with closely depressed scales with no hairs.
(Species 1-8.)

a'. Scales of interocular space directed upwards. (Species 1-3.)

a''. Scales of interocular space metallic. (Species 1, 2.)

1. **Thecla coronata.** (Tab. XLVIII. figg. 7 ; 7 *a*, side view of head, enlarged ; 7 *b*, base of costa, enlarged ; 8 ♂ , 9 ♀ .)

Thecla coronata, Hew. Ill. Diurn. Lep. p. 70, t. 27. ff. 3-5¹.

♂ alis nitide cyaneis, ad basin viridescentibus, marginibus externis nigrescentibus, ciliis albis ; posticis angulo anali nigro, maculis duabus cyaneis ornatis : subtus fuscis viridi-aureo irroratis, fascia communi nigra intus griseo marginata, ad marginem posticarum internum bisinuata ; posticis fascia lata castaneo-brunnea, intus griseo atomata, fascia nigra extus attingente. Fronte, linea pone oculos, coxis extus nitide viridi-aureis ; tibiis et tarsis albis, nigro cinctis.

♀ mari similis ; alis anticis magis rotundatis, dimidio distali et posticarum angulo apicali nigricantibus, plagis duabus et angulo posticarum anali coccineis.

Hab. GUATEMALA, forests of northern Vera Paz (*O. S. & F. D. G.*¹) ; NICARAGUA, Chontales (*Belt, Janson*) ; PANAMA, Veraguas (*Arcé*).—COLOMBIA¹ ; ECUADOR.

Though this species has a general resemblance to *Thecla regalis*, there are many points of difference, the most noticeable being the frontal protuberance, the transverse hair-like scales of the costa, and the absence in the male of the red spots at the anal angle of the secondaries ; beneath, the black line is margined with grey on the inside instead of the outside, and on the secondaries it is contiguous to the chocolate band instead of being divided from it by a green line.

The first male specimen of this beautiful species was captured in the forest between Coban and San Luis, in the department of Peten, in the month of March 1862 ; it was sitting on a leaf on which a ray of sunshine rested. A female was previously in the British Museum from Colombia, and a few others have since reached us from Nicaragua and the State of Panama ; it has also been traced to Eastern Ecuador, where the botanical collector Pearce met with it at Canelos and Buckley at Baños.

The type of the male from Guatemala is figured with a female from Chontales, Nicaragua.

2. **Thecla teresina.** (Tab. XLVIII. figg. 10, 14 ♂ , 11 ♀ .)

Eucharis ganymedes, Boisd. Lép. Guat. p. 14¹ (?).

Thecla teresina, Hew. Ill. Diurn. Lep. p. 209, t. 84. ff. 707, 708².

♂ alis nitide cyaneis fusco tenuiter marginatis, ciliis albis ; posticis macula anali parva rubra : subtus viridibus, anticis dimidio inferiore cærulescente, macula ultra cellulam elongata nigra, extrorsum albo limbata, altera exteriori indistincta, margine externo nigro introrsum albo limbato ; posticis fascia transversa alba introrsum nigro marginata, ad marginem internum profunde serrata, fascia lata bipartita nigra et extra eam altera castanea utrinque albo atomata, margine externo sicut in alis anticis.

♀ mari similis, sed margine externo multo latius nigricante, macula coccinea anali majore ; subtus dimidio anticarum inferiore griseo-fusco haud cæruleo.

Hab. GUATEMALA, Teleman (*Champion*); NICARAGUA¹, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*², *Arcé*).

Hewitson described this species from a single female specimen in Dr. Staudinger's collection obtained by Ribbe in Chiriqui, and we have also an example of the same sex from the same district and another from Nicaragua from Belt's collection. The last-named collector also obtained a male, unfortunately in very bad condition; but the defects are supplied by two wings picked up by Mr. Champion near Teleman in Guatemala.

Its nearest allies are *T. gabriela* of Cramer and *T. batesi* of Hewitson, neither of which have a silky spot on the primaries as in *T. ganymedes* of Cramer. Dr. Staudinger has kindly lent us the type for examination, which confirms our previous identification of the specimens in our collection.

The base of the costa of the primaries in the male of this species shows small oblique scales, but those of the middle costa are normal.

The figures are taken from Nicaraguan specimens.

b''. Scales of interocular space non-metallic. (Species 3.)

3. *Thecla temathea*. (Tab. XLVIII. figg. 17; 17 *a*, base of costa, enlarged; 18 ♂, 19 ♀.)

Thecla temathea, Hew. Ill. Diurn. Lep. p. 74, t. 29. f. 11¹.

Alis nitide cæruleis, fusco anguste marginatis; anticis costa ad basin viridescente medialiter transversim setosa, brunnea; posticis angulo anali cervino: subtus anticis glauco-cæruleis lineis duabus discalibus, una ad cellulæ finem et duabus submarginalibus rufo-brunneis; posticis pallide glauco-fuscescentibus, lineis tribus transversis rufo-brunneis notatis, una discali, altera per cellulam tertia basali, costa quoque ad basin ejusdem coloris, margine externo rufo-brunneo ocellis septem notato, duabus ad angulum apicalem, una inter ramos medianos et lobulo anali medialiter nigris, reliquis albido variegatis.

♀ alis supra omnino brunneis, angulo posticarum anali cervino sicut in mare; subtus mari similis, sed alis omnino brunnescentioribus lineis transversis magis distinctis.

Hab. PANAMA (*Ribbe*).—COLOMBIA; VENEZUELA; AMAZONS¹.

Hewitson's type is a male said to have come from the Amazons¹. The only example we have seen from our country is a female from Chiriqui in Dr. Staudinger's collection. It agrees on the underside with the Colombian male, and no doubt belongs to the same species.

The scales of the costa of the male in this species, as well as in *T. satyroides* and in *T. latreillii**, are setose at the base, placed somewhat obliquely, and transverse in the middle. In this respect these species resemble *T. coronata*.

The type of the male in the British Museum and Dr. Staudinger's female from Chiriqui are figured.

* Hewitson gave Java as the locality of this species; this is certainly an error. In his catalogue a specimen is said to have come from Rio, and we have an example from Paraguay.

b'. Scales of interocular space directed downwards. (Species 4–8.)

c''. Scales of interocular space metallic. (Species 4–7.)

a'''. Anal angle entire. (Species 4, 5.)

4. *Thecla regalis*.

Papilio regalis, Cr. Pap. Ex. t. 72. E, F¹.

Thecla regalis, Hew. Ill. Diurn. Lep. p. 70².

Endymion regalis, Sw. Zool. Ill. ii. t. 85³.

Eucharia regalis, Boisd. Lép. Guat. p. 14⁴.

Papilio endymion, Fabr. Mant. Ins. ii. p. 67⁵.

Evenus endymion, Hübn. Verz. bek. Schmett. p. 78.

♂ *T. coronatæ* similis; anticis magis acutis, posticis angulo anali magis productis et macula coccinea instructis: subtus fascia communi nigra extus griseo limbata, in posticis linea viridi a fascia castanea divisa; fronte haud prolongata, squamis anticarum costæ normalibus haud medialiter transversim ductis.

♀ posticis macula anali coccinea unica ornatis.

Hab. MEXICO, Putla (*Rébouch*), Valladolid in Yucatan (*Gaumer*); GUATEMALA⁴, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé*).—SOUTH AMERICA, from Colombia and Venezuela to South-eastern Brazil^{2 3}, Amazons valley², and Guiana¹.

This is a species of very wide range, spreading over nearly the whole of Tropical America; our series includes specimens from Southern Mexico and South-eastern Brazil. Beyond a slight difference in the acuteness of the primaries and the width of the dark margin, we see no variation in examples from any point in its wide area; these differences, such as they are, seem to be individual rather than local.

Though we have compared it with *T. coronata*, *T. regalis* is, in fact, an isolated form with no very near allies.

5. *Thecla nobilis*. (Tab. XLVIII. figg. 20, 21 ♂, 22 ♀.)

Thecla nobilis, H.-Schäff. Samml. aussereur. Schmett. p. 55, ff. 55, 56¹; Hew. Ill. Diurn. Lep. p. 72².

♂ alis purpureo-cyaneis, ad basin pallidioribus cæruleo-viridescentibus, marginibus externis nigris, ciliis albis: subtus nitide viridibus, anticis fascia transversa nigra litura cinerea utrinque albo marginata divisa, plaga magna discali cærulea; posticis fascia lata coccinea ultra cellulam a costa ad ramum medianum secundum extendente dimidio externo albo atomato extus valde sinuata nigro utrinque marginata, margine nigro, interno albo limbato, lineola interiore per cellulæ finem nigra.

♀ mari similis, anticis ad apicem late nigricantibus; subtus anticarum parte inferiore fusca, haud cærulea; fronte viridissima, antennis nigris.

Hab. GUATEMALA, Rio Chisoy (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Calobre (*Arcé*).—COLOMBIA²; GUIANA¹.

This is a scarce species, though of wide range, spreading from Guatemala to

Colombia. It was described by Herrich-Schäffer from examples said to have come from Guiana; we have never seen it from that country, but the figure undoubtedly represents the species of more western localities. It has no very near allies.

A male from the Chisoy valley, Guatemala, and a female from Calobre, Panama, are figured.

b'''. Anal angle deeply cleft. (Species 6, 7.)

6. *Thecla imperialis*. (Tab. XLVIII. figg. 15, 16 ♂.)

Papilio imperialis, Cr. Pap. Ex. t. 76. E, F ¹.

Arcas imperialis, Sw. Zool. Ill. ser. 2, t. 88 ².

Thecla imperialis, Hew. Ill. Diurn. Lep. p. 71 ³.

Eucharis imperialis, Boisd. Lép. Guat. p. 14

Papilio venus, Fabr. Sp. Ins. p. 115 ⁵.

Theritas venus, Hübn. Verz. bek. Schmett. p. 80.

Thecla ducalis, Hew. Cat. Coll. Diurn. Lep. p. 151 ⁶.

♂ supra *T. cypriae* similis, anticis dimidio apicali et stigmatibus discali nigris; subtus posticis fascia transversa nulla undique viridi-aureis nigro irroratis, ad angulum analem nigro lineolatis.

♀ anticis dimidio anteriore subtus fusco.

Hab. NICARAGUA ^{4 6}, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*).—SOUTH AMERICA, from Colombia to the Amazons valley and Guiana ¹.

Nicaraguan specimens captured by Belt are the only authority for including this species in our fauna; but in Colombia it appears to be common, and thence throughout the Amazons valley to Guiana. In South Brazil an allied species, *T. ducalis*, takes the place of *T. imperialis*; this is distinguished by a beautiful rosy patch on the secondaries beneath and a golden margin to the same wings. *T. oakesi* of Butler may be another form of this section, but we are not certain as to its position or of its difference from *T. imperialis*.

A male from Colombia is figured.

7. *Thecla cypria*. (Tab. XLVIII. figg. 12, 13 ♂.)

Theritas cypria, Geyer, in Hübn. Zutr. ex. Schmett. v. p. 36, ff. 945, 946 ¹.

Thecla cypria, Hew. Ill. Diurn. Lep. p. 71 ².

Thecla paphia, Feld. Reise d. Nov. Lep. p. 243, t. 28. ff. 12, 13.

♂ alis nitide caeruleo-viridescentibus; anticis ad apicem obscurioribus, marginibus nigricantibus chalybeo caeruleo-lescentibus, stigmatibus discali parvo fusco, maculis duabus ad angulum posticarum analem aureis: subtus anticis fusco-glauciscentibus dimidio costali viridi-aureo atomato; posticis nigris, dense aureo irroratis, fascia undosa lata a costa ad marginem internum nigra, intus glauca tenuissime limbata.

♀ anticis ad apicem et posticis ad angulum apicalem late nigricantibus; fronte et oculorum ambitu viridissimis, palpis in mari chalybeis in foemina nigricantibus, antennis nigerrimis.

Hab. MEXICO, Oaxaca (*Fenochio*), Yucatan ¹; GUATEMALA, Polochic valley (*F. D. G. & O. S.*²), Telemán, Candelaria, and El Tumbador (*Champion*); NICARAGUA, Chontales

(*Belt*); COSTA RICA (*van Patten*); PANAMA, Chiriqui (*Ribbe*), Chitra (*Arcé*), Volcan de Chiriqui, David (*Champion*).—COLOMBIA.

This beautiful species was described in Geyer's continuation of Hübner's work from a specimen obtained in Yucatan; we now trace it to Southern Mexico and through Guatemala and the rest of Central America to Colombia, whence we have a specimen given us by Mr. Wheeler; this agrees so accurately with our series from Central America that we have little hesitation in placing Dr. Felder's name, *Thecla paphia*, as a synonym.

The species nearest allied to *T. cypria* is *Thecla tuneta* of Hewitson, which has also a black band crossing the secondaries beneath, a character which separates them from *T. imperialis* and its allies.

A male from Chontales, Nicaragua, is figured.

d''. Scales of interocular space non-metallic. (Species 8.)

8. *Thecla telemus*.

Papilio telemus, Cr. Pap. Ex. t. 4. D, E¹.

Chalybs telemus, Hübn. Verz. bek. Schmett. p. 76.

Thecla telemus, Hew. Ill. Diurn. Lep. p. 73, t. 31. ff. 29 ♂, 30 ♀².

♂ alis cæruleis, marginibus externis anguste nigris, ciliis albis, stigmatè discali fusco: subtus gramineis, anticis fascia submarginali et margine externo ipso fusco-nigris; posticis extus late nigris, litura submarginali, altera interiore confluyente, albis, glauco intermixtis, macula inter ramos medianos castanea et supra eam linea sinuosa literam W formante; fronte, oculorum ambitu, palporum lateribus, antennarum annulis albis.

♀ mari similis, sed obscurior, anticis ad apicem late fuscis; subtus plaga castanea multo majore.

Hab. GUATEMALA, Cubilguitz (*Champion*); NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA, from Colombia and Venezuela to the Amazons valley and Guiana¹.

This is a common species in Guiana and the Amazons valley, but apparently rare in Colombia and our country, whence we have a pair from Nicaragua and a single female only from Guatemala. This is an isolated species with no near allies.

Our northern specimens differ slightly on the underside from those of Guiana and the Amazons valley in the marginal markings of the secondaries both as to their width and curvature; the males, too, have a red spot between the branches of the median nervure, which is present in a less degree in the Colombian, but is entirely absent in more southern examples.

- b.* Interocular space covered with scales mingled with hairs. (Species 9–209.)
- c'*. Anal angle of secondaries divided by a shallow cleft. (Species 9–29.)
- e''*. A fold on the secondaries near the median nervure beneath. (Species 9–15.)
- c'''*. Third joint of the palpus longer in the female than in the male, no alar stigma. (Species 9–13.)

T. MARSYAS section; primaries strongly falcate. (Species 9, 10.)

9. *Thecla damo*. (Tab. XLIX. figg. 1, 2 ♂, 3 ♀.)

Thecla damo, Druce, Cist. Ent. i. p. 362.

♂ alis argenteo-viridi-cæruleis; anticis costa (præter basin) limbo marginali et ciliis nigricantibus; posticis maculis duabus ad angulum analem nigris, lobulo anali albo nigro lunulato: subtus albidis rosaceo tinctis, maculis quinque costalibus nigris, albo circumcinctis, altera ad cellulæ finem et tribus aut quatuor ultra eam discalibus; posticis ad angulum analem albo dense atomatis, maculis cellulam circumpositis albo circumcinctis, altera ad cellulæ finem, lineis duabus submarginalibus nigris albo marginatis, interiore ad marginem internum lunulata, macula nigra submarginali inter ramos medianos, altera ad angulum analem inter eas macula fusca albo atomata.

♀ mari similis, sed alarum marginibus externis et costa anticarum late nigricante fuscis.

Hab. MEXICO, Presidio (*Forrer*), Cordova (*Rümel*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley, Pacific coast, savana of Poctum (*F. D. G. & O. S.*), Purula, Toco, San Gerónimo, Tucuru (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, David, Volcan de Chiriqui, Bugaba (*Champion*), Calobre (*Arcé*), Lion Hill (*M^cLeannan*).—COLOMBIA; WESTERN ECUADOR.

A striking feature in this species is the great diversity in the shape of the apex of the primaries, which in some specimens is produced so as to form a blunt point, the outer margin of the wings being deeply concave, in others the margin is nearly straight; the amount of black on the costa also varies, this portion of the wing in some examples being almost wholly blue; there is also great divergence in size, some specimens being half as large again as others. Making allowance for these individual differences, we trace this species from North-western Mexico to Panama and southwards into Colombia and Western Ecuador. It is by no means a scarce species, but is difficult to catch, as it flies high, settling on the foliage on the borders of the forest.

T. damo is very closely allied to *T. marsyas*, but, besides being of a paler and more silvery blue, the apex of the primaries is not black as in that species.

The figures represent a male from Calobre and a female from David, both in the State of Panama.

10. *Thecla marsyas*.

Papilio marsyas, Linn. Mus. Ulr. p. 315.

Enomaus marsyas, Hübn. Verz. bek. Schmett. p. 76.

T. damoni similis, sed alis multo magis cyaneis, costa et apice usque ad medium marginis externi nigricantibus.

Hab. PANAMA, Chiriqui (*Ribbe*).—SOUTH AMERICA to Guiana and Southern Brazil.

Dr. Staudinger has sent us a single example from the neighbourhood of Chiriqui which should bear this name rather than that of *T. damo*, the prevalent species in the State of Panama; it is of even deeper blue than normal *T. marsyas*, but has the characteristic dark apex to the primaries. We notice a slight difference in it from true *T. marsyas* in that there are two black spots at the anal angle of the secondaries instead of one; in this respect it agrees with *T. damo*, but the character is not of much moment, as these spots vary considerably in size, and in some specimens are almost evanescent.

T. marsyas enjoys a very wide range over nearly the whole of tropical South America

T. AUGUSTULA section; primaries normal. (Species 11, 12.)

11. **Thecla augustula.** (Tab. L. figg. 21, 22 ♂.)

Mithras augustinus, Butl. & Druce, Cist. Ent. i. p. 106¹; P. Z. S. 1874, p. 356²; Butl. Lep. Ex. p. 159, t. 57. f. 8³ (nec Westw.).

Thecla augustula, Kirby, Cat. Diurn. Lep. p. 777⁴.

♂ alis griseo-viridescentibus; anticis dimidio apicali, posticis margine externo, late purpurescente-nigricantibus, lunulis viridescentibus ad angulum analem: subtus brunneis marginibus externis late obscurioribus, anticis macula ad cellulæ finem aliisque sex ultra eam linea arcuata transversa positis viridibus, area interna pallide brunnea; posticis maculis viridibus circum cellulam inter venas positis aliisque indistinctis ad angulum analem viridibus; capite toto et pedibus immaculatis.

♀ alis nitide cæruleis; anticis dimidio apicali, posticis margine externo, nigricantibus, his lunulis angustis ad angulum analem aureis: subtus brunneis, anticis ad apicem albido atomatis, triente externa dilutiore, fasciis indistinctis submarginalibus obscurioribus, maculis quinque linea arcuata transversa inter cellulam et marginem externum sordide viridibus; posticis lineis duabus submarginalibus obscuris, maculis circum cellulam positis inter venas viridibus, aliis indistinctis extra eas serie duplici lunulis quibusdem ejusdem coloris ad angulum analem.

Hab. GUATEMALA, Panima (*Champion*); NICARAGUA (*Hew. coll.*); COSTA RICA (*Van Patten*^{1 2}), Irazu (*Rogers*); PANAMA, Chiriqui (*Ribbe*), Veraguas (*Arcé*).

A single female specimen was contained in Van Patten's large Costa-Rican collection, and this was described by Messrs. Butler and Druce under the name of *Mithras augustinus*, a name unfortunately previously applied to another species by Westwood, necessitating the change made by Mr. Kirby⁴. We have since received a second female example from Costa Rica and two males. Dr. Staudinger has a pair from Chiriqui in his collection. The figures are taken from the Guatemalan specimen.

T. augustula is evidently very closely allied to *T. monica* of Hewitson, differing, however, in having the apex of the primaries beneath freely sprinkled with white scales.

12. **Thecla nepia**, sp. n. (Tab. L. figg. 19, 20 ♂.)

♂ *T. angustulæ* similis, sed alis supra multo magis argenteis, in posticis ad marginem externum extenso; subtus anticis maculis ultra cellulam valde irregulariter positis, serie altera marginem externum propiore, area interna argenteo-cærulea haud brunnea.

♀ adhuc ignota.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA (*Hew. coll.*)?; PANAMA, Bugaba (*Arcé*), Chiriqui (*Ribbe*).

Though evidently allied to the preceding species, the males having the pouch on the secondaries beneath near the median nervure, *T. nepia* is undoubtedly distinct; the silvery hue of the wings above and of the inner portion of the primaries beneath alone serve to separate it. Three male specimens are all that we have yet been able to obtain. Dr. Staudinger has one, also a male, in his collection from Chiriqui. Our figure represents a male from the Polochic valley.

d'''. Third joint of female and male palpus subequal. (Species 13–15.)

T. LISUS section (no alar stigma).

13. **Thecla hisbon**, sp. n. (Tab. XLIX. figg. 4, 5 ♂, 6 ♀).

Alis cærulescentibus, anticis ad apicem nigricantibus; posticis ad angulum analem viridescentibus et nigro marginatis: subtus fuscis, anticis ultra cellulam indistincte bifasciatis; posticis maculis duabus ad cellulæ finem, una costam approximante, aliisque ad marginem internum nigricantibus, viridi-albido notatis, fasciis duabus submarginalibus valde indistinctis nigricantibus, area prope angulum analem viridi irregulariter atomata.

♀ mari similis, sed alis late fusco marginatis, subtus fasciis transversis magis obviis.

Hab. GUATEMALA, central valleys (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*); PANAMA, Chiriqui (*Zahn, Ribbe*).

A close ally of *T. lisus* (Cr.), differing in the underside of the wings being brown, and in the innermost of the transverse bands of the primaries being more oblique and further from the apex of the wing. Of this species but very few specimens have come under our notice; these are from widely different localities. The figures represent a male from Central Guatemala and a female from Costa Rica.

T. HEMON section (an alar stigma beyond the cell).

14. **Thecla hemon**. (Tab. XLIX. figg. 7, 7 a, 8 ♂.)

Papilio hemon, Cr. Pap. Ex. t. 20. f. D, E (♀)¹.

Parrhasius hemon, Hübn. Verz. bek. Schmett. p. 79.

Papilio acmon, Cr. Pap. Ex. t. 51. C, D (♂)².

♂ alis viridescenti-cæruleis, marginibus externis et anticarum costa nigricantibus, anticis stigmatibus ultra cellulam; posticis macula submarginali ad angulum analem viridi-argentea: subtus fusco-nigricantibus, anticis dimidio costali viridi lavato, area interna læte cærulea, fasciis indistinctis ultra cellulam nigricantibus, interiore vix viridi marginata; posticis macula ad medium costæ nigra viridi intus marginata, lineis duabus valde irregularibus plus minusve margini externo parallelis nigricantibus, viridi marginatis, angulum analem versus quoque viridi atomatis.

♀ brunnea, posticis ad angulum analem nigro marginatis: subtus dilutioribus, anticis ultra cellulam fusco bifasciatis; posticis macula distincta nigra ad medium costæ, intus albo marginata, fascia valde sinuata per cellulæ finem ad medium marginis interni fusca, albo extus hic illuc marginata, extra eam fasciis duabus et margine externo fuscis, ad angulum analem viridi marginatis.

Hab. GUATEMALA, Chisoy valley (*Hague*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Zahn, Ribbe*), Veraguas (*Arcé*).—COLOMBIA to GUIANA^{1 2}; Amazons valley and Brazil.

A species of very wide range, extending from Guatemala in the north to South-eastern Brazil, being apparently most abundant in Guiana and the Amazons valley. In Central America, though widely distributed, *T. hemon* cannot be considered common, as we have but few specimens from any portion of our country. There is some variation apparent in the upper surface of the wings, which may be partly due to the age of the specimens. The female is very similar to that sex of *T. mavors*, but may readily be distinguished by the black spot near the middle of the costa of the secondaries beneath. The figure represents a male from Veraguas.

15. *Thecla mavors*.

Theritas mavors, Hübn. Verz. bek. Schmett. p. 80; Zutr. ex. Schmett. i. p. 31. ff. 189, 190 (♂)¹.

Thecla mavors, Hew. Ill. Diurn. Lep. p. 76, t. 31. f. 28 (♀)².

♂ alis gramineis, anticis ad apicem fuscis, stigmatem magno ad cellulæ finem, lineola anteciliari et posticarum caudis nigris his albo terminatis: subtus obscurioribus, posticis atomis nigricantibus undique irroratis, linea communi ultra cellulas nigra in anticis fere obsoleta, in posticis ad marginem internum refracta, angulo extus albido marginato; posticis lineis duabus submarginalibus nigricantibus intus nitide viridi marginatis, angulo anali nigro; antennis nigris subtus albo maculatis, palpis viridibus, pedibus et tarsorum articulis albo notatis.

♀ brunneis unicoloribus; subtus pallidioribus lineis transversis obscurioribus notatis.

Hab. MEXICO, Cordova (*Rümel*), Jalapa (*Höge*); GUATEMALA, Pacific coast region (*F. D. G. & O. S.*), San Isidro, Panima (*Champion*), Polochic valley (*Hague*), Coban (*Von Türckheim*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Cache (*Rogers*); PANAMA, Volcan de Chiriqui (*Ribbe, Champion*), Bugaba, David (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA, Colombia to Guiana¹ and Amazons valley².

This is a very abundant species throughout the northern portion of tropical America. It was described by Hübner from Guiana specimens, and has since been traced throughout the Amazon region and as far northwards as Southern Mexico. It inhabits the low-lying districts, 3000 or 4000 feet being probably its extreme range in altitude.

Our series of specimens show hardly any variation; southern examples are perhaps rather bluer in tint, and have the dark transverse lines on the secondaries beneath more strongly impressed.

f''. No fold on the secondaries near the median nervure beneath. (Species 16–25.)

e'''. Terminal joint of palpus in male and female subequal; a double alar stigma.
(Species 16, 17.)

16. *Thecla halesus*.

Papilio halesus, Cr. Pap. Ex. t. 98. B, C¹.

Thecla halesus, Boisd. & Lec. Lép. Am. Sept. p. 83, t. 25. ff. 1, 2, 3²; Hew. Ill. Diurn. Lep. p. 82³; Strecker, Butt. N. Am. p. 86⁴.

Atlides halesus, Hübn. Verz. bek. Schmett. p. 80.

Atlides dolichos, Hübn. Zutr. ex. Schmett. ii. p. 9, tt. 219, 220⁵.

♂ alis cæruleis, extus late fusco marginatis, anticis stigmatibus duplici ultra cellulam; posticis maculis tribus argenteo-cæruleis ad angulum analem: subtus obscure fuscis, anticis plaga supra ramum medianum cærulea, macula ad basin costæ alarum omnium, altera circa ramum posticarum submedianum ceraceo-rubris; posticis ad angulum analem maculis novem in seriebus tribus notatis nitide aureo-viridibus; abdomine infra rubro aurantiaco.

♀ alis fuscis, ad basin glauco-cærulescentibus; subtus anticis plaga cærulea nulla, aliter mari similis.

Hab. NORTH AMERICA, Southern States, Florida⁵ to California⁴.—MEXICO³, Milpas and Ventanas in Durango (*Forrer*), Valladolid in Yucatan (*Gaumer*); COSTA RICA? *mus. Staudinger*).

This species was described by Cramer from specimens obtained in the State of Virginia; it has since been traced to Georgia, Texas, and across the continent to California, but Florida specimens have been separated by Mr. Scudder under the name of *T. juanita*. These have two chestnut spots at the anal angle of the secondaries beneath not seen in the typical form. Mexican examples agree with Texan, except that the females are more uniformly brown above, with hardly a trace of the blue tint prevalent in more northern examples. We have a single female specimen obtained by Mr. Gaumer in Northern Yucatan, but none from any more southern point. Dr. Staudinger has, however, a male example in his collection said to have been taken in Costa Rica.

17. **Thecla cynara**, sp. n. (Tab. XLIX. figg. 9, 10 ♂, 11 ♀.)

T. haleso similis, sed supra alis margine externo et subtus maculis ad angulum analem magnis aureis distinguenda.

♀ eodem modo a femina *T. halesi* differt.

Hab. MEXICO, Oaxaca (*Sallé, Mus. Brit.*).

There are two male specimens in the British Museum of this species from Mexico, one of them, which we figure, from the State of Oaxaca derived from M. Sallé. We have a female from Mexico, but the exact place of its capture has not been recorded; this is also figured.

The species is no doubt nearly allied to *T. halesus*, but differs as pointed out above, and these differences our Plate makes more obvious.

f'''. Terminal joint of palpus longer in female than in male; a double alar stigma. (Species 18–25.)

18. **Thecla polybe**. (Tab. XLIX. figg. 12, 13 ♂.)

Papilio polybe, Linn. Syst. Nat. i. p. 787¹.

Thecla polybe, Hew. Ill. Diurn. Lep. p. 78, t. 31. f. 38².

Papilio atys, Cr. Pap. Ex. t. 259. ff. E, F (♂).³

♂ alis supra nigricantibus, ad basin glauco-cæruleis, hoc colore extus profunde serrato, anticis stigmatibus duplici ad cellulæ finem; posticis macula ad angulum analem glauco-cærulea: subtus flavidis, venis nigris distincte divis, anticis area interna nitide glauco-cærulescente, macula rubra ad costæ basin; posticis maculis duabus ad basin rubris, fasciis duabus maculosis ad angulum analem nigrum viridi-aureis, linea ad marginem internum et macula ad angulum analem glauco-cæruleis, abdomine infra late aurantiaco.

♀ supra mari similis, subtus alis læte flavis, anticis area interna ejusdem coloris, plaga glauca cærulea nulla.

Hab. MEXICO, Cordova (*Rümelì*), Jalapa (*Höge, H. Edwards*); GUATEMALA, Polochic valley (*Hague*); PANAMA, Chiriqui, Chitra (*Arcé*), David (*Champion*).—SOUTH AMERICA, Venezuela to Guiana³ and South Brazil².

This beautiful species enjoys a wide range, extending from Southern Mexico to Guiana, but we have seen no specimens from the valley of the Amazons. It appears to be everywhere a scarce insect, as but few specimens have reached us from any one locality. The only female we have seen is one lent us by Dr. Staudinger; on the underside it differs widely from the male, this being mainly due to the absence of the bright blue patch on the primaries of the latter, a sexual character in very many species of *Thecla*.

19. ***Thecla inachus*.** (Tab. XLIX. figg. 14, 15 ♂, 16 ♀.)

Papilio inachus, Cr. Pap. Ex. t. 36. D¹.

Olynthus inachus, Hübn. Verz. bek. Schmett. p. 80.

♂ alis viridescence-cæruleis, marginibus externis fuscis, anticis stigmatè duplici ad cellulæ finem: subtus fuscescentibus, anticis ad basin medialiter viridescens, ramo costali ad basin nigro et prope basin macula alba, costa parte proxima coccinea, fascia ultra cellulam et maculis duabus intra eam intus nigricantibus, extus albis; posticis parte proxima coccinea macula magna nigra inter ramos costalem et subcostalem, infra albido circumcincta, fasciola ad cellulæ finem, altera margini interno subparallela, tertia ad angulum analem nigris omnibus albido marginatis.

♀ alis fuscis, ad basin sordide viridescens, aliter mari similis.

Hab. PANAMA, Chiriqui (*Ribbe*), Chitra, Calobre (*Arcé*).—EASTERN PERU; AMAZONS; GUIANA.

A species by no means abundant in South America, but widely spread from Guiana to the base of the Andes. From the State of Panama we have a few specimens, though Mr. Champion did not meet with it. From Guatemala we have but a single female specimen, but Dr. Staudinger has lent us a male from the same country. The figures represent a male from Chitra and a female from Calobre.

20. ***Thecla carpophora*.** (Tab. XLIX. fig. 17 ♀.)

Thecla carpophora, Hew. Descr. *Thecla*, p. 16; Ill. Diurn. Lep. pp. 116, 182, t. 47. ff. 221, 222, t. 72. f. 547¹.

T. inachi persimilis, sed subtus colore coccineo ad alarum bases purpureo suffuso, macula nigra, posticarum ad basin multo minore et puncto supra eam in costa ipsa alba, forsan distinguenda.

Hab. MEXICO¹ (*Mus. Brit.*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

This is evidently a northern form of *T. inachus*, of which there are two specimens, said to be from Mexico, in the Hewitson collection in the British Museum, a male and a female. We have also a female example from Guatemala, which we now figure. In the State of Panama the true *T. inachus* occurs.

21. **Thecla carpasia.** (Tab. XLIX. figg. 18, 19 ♂.)

Thecla carpasia, Hew. Descr. Thecla, p. 15¹; Ill. Diurn. Lep. p. 116, t. 47. ff. 223, 224².

♂ alis viridi-cæruleis, extus fusco marginatis, anticis stigmatibus duplici ad cellulæ finem; posticis maculis quibusdam argenteo-cæruleis ad angulum analem: subtus fuscis, posticarum venis nigricantibus, anticis ad basin costæ coccineo bimaculatis, maculisque tribus aliis glaucescentibus, supra ramum costalem una, duabus supra ramum medianum; posticis ad basin nigris rubro-bimaculatis, duabus (venis nigris divisis) maculis alteris quinque in eadem regione glauco-cærulescentibus, angulo anali maculis viridescentibus in seriebus tribus notatis; abdomine infra aurantio-rubro.

♀ alis fuscis, ad basin cærulescentibus, aliter mari similis.

Hab. MEXICO^{1 2}, Jalapa (*Höge, H. Edwards*), Cordova (*Rümeli*); GUATEMALA (*mus. Staudinger*).

Hewitson's figure and description of this species were based upon a female from Mexico, and he rightly compared it with *T. atys* of Cramer, from which, however, it very obviously differs. Our specimens are all from a limited district in the State of Vera Cruz, where doubtless it is far from common, and this seems to be the case with all members of this section. Dr. Staudinger has in his collection a male example from Guatemala. The allied form *T. atys* approaches no nearer than the State of Panama. A male from Jalapa is figured.

22. **Thecla bacis**, sp. n. (Tab. XLIX. figg. 20, 21 ♂, 22 ♀.)

T. atidi similis quoad paginam alarum superiorem; subtus maculis octo viridescentibus in serie obliqua ultra cellulam positis, maculis rubris ad costæ basin confluentibus; posticis costa fere omnino coccinea, cellulæ parte superiore et area juxta ramum submedianum quoque coccineis, margine interno late et angulo anali nigris distincte viridi lineolatis.

♀ mari similis, sed alis supra ad basin tantum viridescenti-cæruleis; subtus dilutioribus, venis fuscis magis obviis.

Hab. PANAMA, Chiriqui (*Ribbe, mus. Staud.*).

Of this beautiful species Dr. Staudinger has sent us a pair for examination, obtained by Herr Ribbe at Chiriqui. It is clearly allied to *T. atys*, from which it is not distinguishable on the upperside; beneath, the differences are obvious, as will be seen on reference to our figures and description.

23. **Thecla atys.** (Tab. XLIX. fig. 23 ♂.)

Papilio atys, Cr. Pap. Ex. t. 259. G, H (♀)¹.

Atlides atys, Hübn. Verz. bek. Schmett. p. 80.

Thecla atys, Hew. Ill. Diurn. Lep. p. 78, t. 31. f. 37 (♂)².

♂ alis viridescentibus, extus fusco marginatis, anticis stigmatibus duplici ad cellulæ finem: subtus fuscis, anticis area costali cervinis venis fuscis divisa, fascia obscura ad cellulæ finem, costa ad basin nigra coccineo bimaculata; posticis venis nigricantibus notatis, area inter venam costalem et subcostalem cervina, maculis tribus coccineis ad basin aliisque duabus glaucescentibus, maculis quibusdam ad angulum analem viridescentibus.

♀ alis fuscis, ad basin glauco-viridescentibus; subtus mari similis.

Hab. PANAMA, Chiriqui, Chitra (*Arcé*), Bugaba (*Champion*).—AMAZONS²; GUIANA¹.

Cramer in describing this species applied the name *atys* to a male of *T. polybe* and a female of the present species; it is upon the female, therefore, that the title rests. The underside of the male was figured by Hewitson from an Amazon specimen in his own collection², from which source we also have examples. With these several specimens from the State of Panama agree very closely; the underside of the wings, however, is generally darker owing to the interspaces between the nervures being of a darker shade, but the difference is hardly specific. Our figure represents a male from Bugaba.

24. *Thecla aufidena*. (Tab. L. figg. 1, 2 ♂, 3 ♀.)

Thecla aufidena, Hew. Ill. Diurn. Lep. p. 117, t. 47. ff. 213, 214¹; Boisd. Lép. Guat. p. 15².

*Thecla jala*n, Reakirt, Pr. Ac. Phil. 1866, p. 335³?

♂ alis intense cyaneis extus anguste nigro marginatis; anticis stigmatibus duplici ad cellulæ finem; posticis lobulo anali rufo atomis albis notato: subtus fuliginosis, anticis lineis tribus transfasciatis omnibus abbreviatis, una per cellulam reliquis submarginalibus, macula ad basin costæ rubra; posticis lineis septem albis ab angulo anali radiantibus, extima submarginali obsoleta, duabus intimis confluentibus, angulo anali rubro, albo atomato et nigro marginato, lobulo anali ipso nigro; fronte et pectore rubris.

♀ alis albicante-cæruleis; anticis costa late et margine externo fuscis; posticis quoque extus fusco marginatis, lineola submarginali alba, angulo anali rubro albo atomato.

Hab. MEXICO², Presidio near Mazatlan (*Forrer*), Oaxaca (*Fenochio*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Chacoj, Telemán, Panzos, Cahabon, Chiacam, Panima, San Gerónimo, Dueñas, Zapote (*Champion*); HONDURAS², Coban (*Von Türckheim*); NICARAGUA¹, Chontales (*Belt, Janson*); PANAMA, Chiriqui, Calobre (*Arcé*), Lion Hill (*M'Leannan*), Colon (*Boucard*).

This species is allied to *T. battus* of Cramer, from which, however, it may be readily distinguished by the much greater intensity of the blue colouring of the wings. *T. aufidena* was described from Nicaraguan specimens, but we now know it as a common insect throughout our region from Southern Mexico to Panama, in which wide area we trace no tendency to vary, Mexican and Panama examples being absolutely alike. On passing into South America *T. battus* immediately takes its place in Colombia, and thence spreads through Venezuela to Guiana. The description of *Thecla jala*n³ suits the female of this species fairly except that the upper surface of the wings is glossed with blue and not black (possibly a misprint for blue!). Under this uncertainty we continue to use Hewitson's name, though perhaps not the oldest. Our figures represent a male from Panima and a female from Dueñas.

25. *Thecla phaleros*. (Tab. L. figg. 4, 5 ♂, 6 ♀.)

Papilio phaleros, Linn. Syst. Nat. i. p. 796¹.

Cycnus phaleros, Hübn. Verz. bek. Schmett. p. 81.

Thecla phaleros, Hew. Ill. Diurn. Lep. p. 85²; Boisd. Lép. Guat. p. 16³.

Papilio silenus, Cr. Pap. Ex. t. 282. E (♀)⁴.

Papilio agis, Drury, Ill. Nat. Hist. iii. t. 26. ff. 3, 4⁵.

Hesperia chiton, Fabr. Ent. Syst. iii. p. 262⁶.

Papilio chiton, Donovan. Ins. Ind. t. 39. f. 1, 1a⁷.

♂ alis læte cyaneis, anticis costa apice et margine externo nigricantibus, stigmatibus duplici ad cellulæ finem; posticis nigro extus marginatis, angulo anali albo variegato: subtus fuscis, anticis maculis quinque notatis, una ad costæ basin, una ad cellulæ finem, altera minuta ultra eam extima submarginali extus pro parte rufo limbata; posticis lineis sex lactescente-albis omnibus ab angulo anali plus minusve radiantibus, tribus externis latissimis costam attingentibus, extima rufo extus limbata duabus internis confluentibus, angulo anali nigro albo notato et atomis quibusdam viridi-argenteo variegato.

♀ alis fuscis cæruleo vix lavatis; subtus anticis maculis albidis majoribus ea ad cellulæ finem marginem internum album confluyente.

Hab. MEXICO, near Vera Cruz (*W. H. Edwards*³)?; GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Panima (*Champion*); HONDURAS³; NICARAGUA³, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé, Ribbe*), Bugaba (*Champion*), Panama (*Ribbe*).—SOUTH AMERICA, Venezuela to Guiana⁴, Amazons valley and Brazil⁵.

South-American typical specimens have no small spot beyond the band at the end of the cell on the underside of the primaries, but in Central-American examples this spot is clearly shown. As in certain South-American specimens its presence is just visible, this character fails to distinguish Central-American from South-American examples, and failing other characters we treat them all as of one species. *T. phaleros* therefore has a very wide range in Tropical America, spreading from Guatemala southwards through the Amazons valley to Guiana and South-east Brazil. A male from Panima and a female from the Polochic valley are figured.

g''. A tuft of hair near inner margin of secondaries beneath. (Species 26–29.)

26. *Thecla coccineifrons*, sp. n. (Tab. L. figg. 7, 8 ♂, 9 ♀.)

Thecla torfrida, Hew. Cat. Coll. Diurn. Lep. p. 152¹.

♂ alis supra læte cæruleis extus fusco marginatis, posticis maculis duabus argenteo-cæruleis ad angulum analem: subtus fuscis in regione costali dilutioribus undique venis nigris divisis, fascia ad cellulæ finem obscura; anticis ad basin nigricantibus, maculis tribus notatis, duabus ad costæ finem, tertia inter venas costalem et subcostalem coccineis, maculis duabus aliis albicantibus, una ad cellulæ basin, altera costali; posticis macula basali ad costam coccinea, maculis aliis ad angulum analem viridescentibus intima cærulescente; macula frontali coccinea, abdomine infra rubro-aurantiaco.

♀ alis fuscescentibus ad basin glauco-cæruleo lavatis; subtus multo pallidioribus, venis nigris magis obviis.

Hab. NICARAGUA¹, Chontales (*Belt*).—COLOMBIA.

This species is very nearly allied to *T. torfrida* of Hewitson, the type of which is before us, but the male is of a richer blue on the upper surface, and darker beneath, and both sexes have a scarlet spot between the eyes on the forehead, of which we find no trace in the allied form. *T. coccineifrons* is only known to us from three specimens, two taken by Belt, one of which is before us, the other, a male, is in the Hewitson collection, where it stands under the name of *T. torfrida*. The third, also a male, was

obtained by Mr. Simons in the neighbourhood of Santa Marta in Colombia. The Santa-Marta male and the Nicaragua female are figured.

27. *Thecla carthæa*. (Tab. L. figg. 10, 11 ♂, 12 ♀.)

Thecla carthæa, Hew. Descr. *Thecla*, p. 15¹; Ill. Diurn. Lep. p. 116, t. 47. ff. 215, 216².

Alis supra viridescence-cyaneis, margine externo anguste nigro; posticis angulo anali maculis tribus viridi-aureis notato: subtus brunneo-fuscis, anticis macula tripartita costali ultra cellulam, una ad basin et duabus infra venam costalem nitide viridibus, maculis quoque duabus basalibus coccineis nigro cinctis; posticis macula coccinea ad basin, altera in angulo inter venas costalem et subcostalem viridi, lineolis aureis ad angulum analem et maculis duabus ad marginis interni finem viridibus, plaga setosa inter venas submedianam et internam.

♀ mari similis, sed alis supra fusco-nigricantibus ad basin cæruleo lavatis.

Hab. MEXICO^{1 2}, Cordova (*Rümel*).

The type of this pretty species is a male, and shows the small pencil of hairs on the secondaries beneath just as in *T. caranus* and its allies. Our specimen from Cordova is a female. These are the only specimens known to us and we figure them both.

28. *Thecla caranus*. (Tab. L. figg. 13, 13 *a*, 14 ♂, 15 ♀.)

Papilio caranus, Cr. Pap. Ex. t. 332. C, D¹.

Brangas caranus, Hübn. Verz. bek. Schmett. p. 80.

Thecla caranus, Hew. Ill. Diurn. Lep. p. 90².

Papilio pelops, Cr. Pap. Ex. t. 341. A³.

♂ alis cyaneis, ciliis et anticarum apicibus nigricantibus; posticis macula minuta ad angulum analem glaucescente: subtus brunneo-fuscis ad basin læte rubris et maculis albis nigro circumcinctis frequenter notatis; anticis area interna obscure glaucescente; posticis linea submarginali nigra ad fines ambos albo-variegata, angulo anali nigro bimaculato et albo notato; macula frontali coccinea.

♀ alis fuscis, ad basin glaucescentibus, subtus pallidioribus, aliter mari similis.

Hab. PANAMA, Chiriqui, Calobre (*Arcé*), David (*Champion*).—SOUTH AMERICA from Colombia to Amazons valley² and Guiana^{1 3}.

A well-marked species of Guiana and the Amazons valley which just enters our fauna in the State of Panama, whence we have three examples—a male and two females. The former from David and one of the latter from Calobre are figured.

Thecla silumena, Hew., belongs to this group.

29. *Thecla neora*. (Tab. L. figg. 16, 17 ♂, 18 ♀.)

Thecla neora, Hew. Ill. Diurn. Lep. p. 90, t. 38. f. 110 (♀)¹.

T. carano aliquot similis, sed multo minor, anticis costa et apice latius fuscis; subtus maculis multo rarioribus, macula frontali coccinea nulla.

Hab. MEXICO, Cordova (*Rümel*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Vera Paz (*F. D. G. & O. S.*¹).—COLOMBIA.

This species appears to be very scarce; the type, a female, we now figure from

Guatemala and one of two males from Mexico; we have also a female from the neighbourhood of Santa Marta in Colombia. Though evidently allied to *T. caranus*, *T. neora* can readily be distinguished by the greater restriction of the blue on the primaries of the males in both sexes and by the paucity of the spots towards the base of the wings beneath. Our males are in poor condition and we are unable to detect the presence of the tuft of hairs on the secondaries beneath, characteristic of this section; but we place *T. neora* here from its resemblance in colour to *T. caranus*.

d'. Anal angle of secondaries undivided. (Species 30–209.)

h''. Frontal scales directed upwards. (Species 30–32.)

30. **Thecla oceia**, sp. n. (Tab. L. figg. 23 ♀, 24, 25 ♂.)

Mithras desdemona, Butl. & Druce, P. Z. S. 1874, p. 356 (nec Hew.)¹.

T. laothoë valde similis, sed alarum marginibus externis nigricantibus multo angustioribus; posticis subtus quoque ut videtur minus nigricantibus.

Hab. COSTA RICA (*Van Patten*¹), Irazu, Rio Sucio (*Rogers*).

This species is apparently allied to *T. viridicans* of Felder, but has the black margin of the primaries of the male much narrower and the colour bluer. It is also allied to *T. laothoë*, from which, indeed, we have some hesitation in separating it, but the narrower margin to the wings coupled with the less extent of the black margins to the white lines beneath in the neighbourhood of the anal angle, and the whiter fringe, and the different habitat of the insect seem to justify separation.

Mr. Rogers obtained a good series of specimens in the interior of Costa Rica, others were obtained by Van Patten. These latter appear to have passed for *T. barajo* in Messrs. Butler and Druce's list of his collection. The specimens figured are from Irazu.

31. **Thecla laothoë**, sp. n. (Tab. L. figg. 26, 27 ♂.)

T. barajo similis, sed squamis frontalibus aliter positis, alarum marginibus externis multo latioribus, ciliis fusciscentibus; posticis subtus ad angulum analem multo magis nigricantibus, plaga sericea posticarum nulla primo visu distinguenda.

Hab. GUATEMALA, Polochic valley (*Hague*), Purula, Senahu (*Champion*).

Allied to *T. viridicans*, Felder, but differing in the much bluer shade of the wings, which is as dark as that of *T. barajo*; the black margin of the primaries is narrower, and the secondaries beneath are much blacker towards the anal angle.

At first sight and in the distribution of the white bands this species resembles *T. barajo*; but the male may at once be distinguished by the absence of the silky patch on the upper surface of the secondaries, and other characters.

Mr. Champion captured several specimens of *T. laothoë* in the valley of the Polochic

river, where it occurs up to an elevation of about 4000 feet. The male figured was caught at Purula.

32. *Thecla erybathis*. (Tab. L. figg. 28, 29 ♂.)

Thecla erybathis, Hew. Ill. Diurn. Lep. p. 84, t. 34. ff. 58, 59¹; Boisd. Lép. Guat. p. 15².

♂ alis supra nitide viridescentibus, anticis costa apice et margine externo late nigricantibus; posticis quoque extus eodem colore marginatis, lobulo anali nigro, lineola albida notato: subtus schistaceis, anticis lineis tribus albis transfasciatis, una brevi ad cellulæ finem, reliquis aliquanto abbreviatis, submarginalibus; posticis lineis sex albis omnibus plus minusve ab angulo anali radiantibus, quatuor externis costam attingentibus, angulo anali nigro lunulis duabus fulvis notato.

♀ nobis ignota.

Hab. MEXICO¹, Orizaba (*Sallé*), Jalapa (*H. Edwards*); HONDURAS? (*fide Boisduval*²).

In general coloration of the upper surface this species bears a general resemblance to *T. viridicans* of Venezuela, and though differing widely on the underside, it probably has a remote relationship to that species. It is evidently a rare insect in Mexico, where alone it has as yet been found. The figure represents a male from Jalapa.

i''. Frontal scales directed downwards. (Species 33–209.)

g'''. Anal angle of secondaries elongated, the anal lobe prominent. (Species 33–52.)

1. An alar stigma at the end of the cell of the primaries; two secondary filaments; wings beneath rufous, sprinkled with white scales. (Species 33–35.)

33. *Thecla busa*, sp. n. (Tab. LI. figg. 1, 2 ♂.)

♂ alis læte cæruleis fusco marginatis, anticis area interna læte sericeo-cyanea, parte supra cellulæ finem nigricante certa luce viridescente; posticis lineola arcuata ad angulum analem: subtus obscure castaneis dimidio distali albo irroratis, hoc colore in anticis fascias duas transversas formante, maculis duabus ad angulum analem posticarum nigricantibus.

♀ adhuc nobis ignota.

Hab. GUATEMALA, Mirandilla (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*mus. Staudinger*).

T. undulata, Hewitson, of Venezuela, seems to be the species most nearly allied to this, with the exception of *T. perpenna*, described below. From *T. undulata* it differs in the bluer tint of the base of the primaries, and the whole of the secondaries, and the broader outer margin of the former. *T. undulata*, moreover, has a distinct concentrated brand at the end of the cell which, in *T. busa*, is larger and more diffused, if, indeed, it may be called a brand at all. *T. busa* is apparently a very rare species, of which we have only two males from Belt's collection (one of which is figured), and a fragment of a third picked up by Mr. Champion in the forest of Mirandilla, in Guatemala. Dr. Staudinger has lent us the only Costa-Rican specimen we have seen.

34. **Thecla perpenna**, sp. n. (Tab. LI. figg. 3, 4 ♂.)

♂ *T. busæ* similis, sed minor et anticis parte apicali multo latius fusca, plaga sericea multo minor et macula ad cellulæ finem nulla.

♀ nobis ignota.

Hab. PANAMA, Chiriqui (*Ribbe*).

The single male specimen upon which our characters are based and our figure drawn was lent us by Dr. Staudinger, for whom it was obtained by Herr Ribbe during his expedition to Chiriqui. It is unquestionably distinct from *T. busa* on the one hand, and *T. undulata* on the other, though obviously allied to these species.

35. **Thecla hyas**, sp. n. (Tab. LI. figg. 5 ♀, 6, 7 ♂.)

Mithras tolmidès, Butl. & Druce, P. Z. S. 1874, p. 356¹ (nec Feld.).

Thecla tolmidès, Hew. Ill. Diurn. Lep. p. 80² (nec Feld.).

♂ alis nitide viridi-cæruleis, marginibus externis anguste fuscis, anticis plaga sericea nulla, posticis lineola ad angulum analem nulla; subtus obscure castaneis, lineis duabus transversis albis extus albo atomatis.

♀ alis fuscis, dimidio basali tantum viridi-cæruleis, aliter mari similis.

Hab. MEXICO (*Mus. Brit.*²); GUATEMALA, Vera Paz (*Hague*); COSTA RICA (*Van Patten*¹); PANAMA, Chiriqui (*Ribbe*).

T. hyas bears a strong resemblance to *T. tolmidès* of Felder, from Colombia, of which, no doubt, it is a more northern form. The male differs in having a much narrower dark outer border to the wings, and in the general colour beneath being of a chestnut rather than a dark brown; the lines, too, on the under surface are much less strongly impressed. Though of wide range in Central America, it is nowhere common, but perhaps more so in Costa Rica than elsewhere, Van Patten having sent several examples from that country, a male and a female of which we have figured.

2. No alar stigma; costa and outer margin of primaries much rounded; two secondary filaments; wings beneath rufous; primaries crossed by three transverse white bands. (Species 36, 37.)

36. **Thecla cadmus**. (Tab. LI. figg. 8, 9 ♂, 10 ♀.)

Pseudolycaena cadmus, Feld. Reise d. Nov. Lep. p. 247, t. 31. f. 5¹.

Thecla cadmus, Hew. Ill. Diurn. Lep. p. 80².

Alis supra purpureo-cyaneis, marginibus externis latis et anticarum costa et apice nigricantibus: subtus rufo-brunneis, lineis tribus valde irregularibus glauco-albidis transfasciatis, una per cellulas, altera ultra eas, tertia discali margini externo plus minusve parallela, in posticis duplici; posticis maculis tribus ad angulum analem nigris castaneo introrsum cinctis.

♀ alis multo magis rotundatis supra ad basin cærulescentibus, aliter mari similis.

Hab. PANAMA, Volcan de Chiriqui (*Champion, Ribbe*).—SOUTH AMERICA from Colombia^{1 2} to Bolivia, Venezuela¹, and Guiana.

T. cadmus has a wide range in South America, extending from Bolivia in the south

and Guiana in the east to the State of Panama, whence we have seen two specimens, one in our own collection which we figure, and one in that of Dr. Staudinger, both from the neighbourhood of Chiriqui. The figure of the male is taken from the only example of that sex we have seen; it is in the British Museum, and was captured by Buckley in Ecuador; the type (now in our possession) and all the others we have examined are females.

37. *Thecla petelina*. (Tab. LI. figg. 11, 12 ♀.)

Thecla petelina, Hew. Ill. Diurn. Lep. p. 199, t. 79. ff. 643, 644¹.

Alis fuscis, anticis dimidio basali costam haud occupante et posticis ad marginem internum læte cæruleis: subtus saturate fuscis, anticis lineis tribus transversis albis, duabus submarginalibus ad apicem confluentibus, tertia discali arcuata, lineola alba ad cellulæ finem; posticis lineolis et maculis albis irregulariter notatis, macula supra lobulum analem, altera inter ramos medianos et atomis quibusdam inter eas ochraceis.

Hab. COSTA RICA (*Van Patten*); PANAMA, Chiriqui (*Ribbe*¹, *Trotsch*).

We have three female specimens of this species before us—two from Chiriqui, lent us by Dr. Staudinger, one of them being the type of the species; the third is from Costa Rica and is now figured.

Without the male we cannot be sure of the position of this species; but it has some resemblance to *T. cadmus*, and we therefore place it here.

3. No alar stigma; apex of primaries acute; wings beneath rufous, crossed by three nearly straight white lines. (Species 38, 39.)

38. *Thecla furina*, sp. n. (Tab. LI. figg. 13, 14 ♂.)

♂ alis nitide cyaneis, marginibus externis late nigricantibus; posticis lineola ad angulum analem sinuosa submarginali ad angulum analem: subtus saturate castaneis, lineolis tribus transversis communibus, in posticis valde refractis albicantibus, lineola submarginali posticarum ad angulum analem ejusdem coloris.

♀ mari similis, sed colore cyaneo multo pallidiore.

Hab. MEXICO; GUATEMALA, Quiche Mountains (*Champion*).

This species and the next are allied to *T. ægiades* of Felder; but *T. furina* differs in having a much wider dark border in the male. We have only two specimens—a female said to be from South Mexico, but without precise locality, and a male captured by Mr. Champion in the mountains between Quiche and Totonicapam, at an elevation of between 7000 and 9000 feet above the sea; the latter is figured.

39. *Thecla cyda*, sp. n. (Tab. LI. figg. 15, 16 ♀.)

Mithras ægiades, Butl. & Druce, P. Z. S. 1874, p. 356¹ (nec Felder).

♂ *T. furina* similis, sed colore cyaneo magis nitido marginibus alarum quoque nigricantibus multo latioribus.

♀ mari similis.

Hab. COSTA RICA (*Van Patten*¹), Irazu, Rio Sucio, Cache (*Rogers*).

We have a series of specimens of this species from Costa Rica, including three males

and five females; from these we note there is no practical distinction in colour between the sexes. This is otherwise in *T. ægiades*, in which the sexes present the usual differences. A specimen from Irazu is figured.

4. An alar stigma; wings beneath sooty. (Species 40, 41.)

a. A single secondary filament; secondaries beneath mottled with black.

40. **Thecla parthenia.** (Tab. LI. figg. 17, 18 ♂.)

Thecla parthenia, Hew. Ill. Diurn. Lep. p. 174, t. 68. ff. 502, 503¹.

♂ alis læte cæruleis, anticis costa et dimidio apicali nigris, stigmatе fusco ad cellulæ finem; posticis costa et margine externo anguste nigris: subtus fuliginosis, linea communi discali brunnea extrorsum pallide fusco limbata in posticis ad marginem internum profunde angulata, lineola duplici ad cellularum fines brunnea, macula infra venam costalem nigricante, lobulo anali umbrino-brunneo.

♀ nobis ignota.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*¹).

We have two specimens of this beautiful species (one of which we figure), both taken in the Polochic valley by our collectors; these agree fairly with the type of *T. parthenia* in the Hewitson collection, which, however, is in very bad condition. Hewitson speaks of his type having a washed-out appearance; this is entirely due to the abrasion of the scales of the wings, of which they are nearly destitute.

β. Two secondary filaments; secondaries beneath with transverse black lines.

41. **Thecla theia.** (Tab. LI. figg. 19, 20 ♂, 21 ♀.)

Thecla theia, Hew. Equat. Lep. p. 60¹; Ill. Diurn. Lep. p. 172².

Thecla æthesa, Hew. Ill. Diurn. Lep. t. 68. ff. 493, 494³.

♂ alis nitide cyaneis; anticis costa, margine externo et apice nigris, stigmatе ad cellulæ finem fuliginoso; posticis apice anguste et margine externo nigris, ciliis omnibus nigerrimis: subtus fuliginosis; anticis lineis quatuor ultra cellulam transvittatis et una brevi per cellulæ medium nigris; posticis lineis quatuor transfasciatis, intima ad angulum analem bene refracta, linea altera per cellulæ medium et una brevi ad finem, nigris, maculis tribus cervinis ad angulum analem.

♀ mari similis, sed major, alarum marginibus et apicibus latius nigricantibus; subtus multo pallidioribus, lineis transversis nigris magis obviis.

Hab. PANAMA, Volcan de Chiriqui (*Champion, Ribbe*).—VENEZUELA; ECUADOR¹; BOLIVIA².

Hewitson's description of this species was based upon Ecuadorian and Bolivian specimens. We have two examples said to be from Venezuela; with these a pair from the State of Panama (both of them figured) agree very closely, and show that, rare as this species is, its range is very extensive. The lines on the under surface of the wings suggest a relationship between this species and *T. laothoë*; but *T. theia* has distinct brands on the primaries, and we doubt if there is any real affinity.

5. A stigmatic patch near the costa of the secondaries above and a corresponding one on the primaries below the median nervure; two secondary filaments. (Species 42.)

42. **Thecla barajo.** (Tab. LI. figg. 22, 23 ♂, 24 ♀.)

Thecla barajo, Reak. Proc. Ac. Nat. Sc. Phil. 1866, p. 333¹.

Thecla desdemonia, Hew. Ill. Diurn. Lep. p. 79, t. 45. ff. 189, 190°.

♂ alis supra læte cæruleis, ciliis albis; anticis marginibus costali et externo anguste nigris ad angulum apicalem latius; posticis margine externo anguste nigro, maculis indistinctis albis ad angulum analem, plaga magna costali sericea: subtus fuscis, anticis lineis quatuor albis transvittatis, una per cellulæ finem, altera submarginali et duabus inter eas ad angulum analem confluentibus; posticis lineis duabus submarginalibus in costa ad angulum apicalem confluentibus et ad angulum analem attingentibus in hac regione interiore introrsum, exteriore extrorsum, nigro marginatis, lineis alteris tribus transversis albis ad angulum analem confluentibus intima et extima conjunctis et nigro extrorsum marginatis, macula nigra introrsum ferrugineo-notata ad angulum analem.

♀ mari similis, sed alis pallidioribus, marginibus nigris latioribus et plaga posticarum sericea nulla distinguenda.

Hab. MEXICO; GUATEMALA, Polochic valley (*F. D. G. & O. S.*²), San Gerónimo, Purula, Cahabon (*Champion*), Coban (*Von Türckheim*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA, Irazu (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Calobre (*Arcé*).

Specimens of this species brought by us from Guatemala were described and figured by Hewitson under the name of *Thecla desdemonia*²; but it was discovered subsequently that the same insect had been previously barbarously named *Thecla barajo* by Reakirt¹, whose title must, we suppose, stand. As will be seen, the species has a wide range in Central America, and is especially abundant in the valley of the Polochic up to an elevation of 3000 or 4000 feet above the level of the sea. A male from Purula and a female from Cahabon are figured.

6. A stigma near the base of the median nervure of the primaries beneath and another below it showing as a boss on the upperside; two secondary filaments. (Species 43.)

43. **Thecla eunus**, sp. n. (Tab. LI. figg. 25, 26 ♂.)

Bithys? thara, Butl. & Druce, P. Z. S. 1874, p. 356 (nec Hewitson).

Alis nitide cyaneis, marginibus externis et anticarum costa nigris; posticis plaga inter venas costalem et subcostalem polita: subtus cinereo-fuscis, lineis duabus maculosis submarginalibus nigris exteriore lunulis albis introrsum marginata, interiore perfracta, extrorsum albo limbata, linea quoque ad cellularum fines alba; posticis maculis duabus costalibus fuscis, exteriore introrsum interiore extrorsum albo-notatis, lobulo anali et macula inter ramos medianos nigris, introrsum castaneo limbatis, inter eas macula fusca dense viridi-argenteo irrorata; anticis plaga nigra supra venam medianam, infra eam macula rotunda nigra stigmatem formante.

♀ mari similis, sed alis cærulescentioribus et extus latius nigricantibus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*); PANAMA, Volcan de Chiriqui (*Arcé*).—VENEZUELA.

At first sight this species bears some resemblance to *Thecla thara* of Brazil; but it may at once be distinguished by the presence of the smooth patches on the upper surface of the secondaries lying near the base of the costa. The curious brand on the primaries beneath below the median nervure shows on the upper surface as a small raised boss, which, however, is coloured like the rest of the wing.

T. eunus is a fairly abundant species throughout Central America from Guatemala to the State of Panama. We have also a female from Venezuela which may belong to it; but in the absence of the male we cannot speak positively. A male from the Polochic valley is figured.

7. A stigmatic patch between the median and submedian nervures of the primaries beneath; under surface of wings white, crossed by four black transverse lines; two secondary filaments. (Species 44–46.)

44. *Thecla sito*.

Thecla sito, Boisd. Sp. Gén. t. 22. f. 5¹; Hew. Ill. Diurn. Lep. p. 87, t. 45. ff. 193–195²; Cat. Coll. Diurn. Lep. p. 154³.

♂ alis saturate cæruleis, margine costali et dimidio apicali cum ciliis fuscis; posticis fusco anguste marginatis, lobulo anali fulvo, cellula pro majore parte indistincte sericea: subtus cretaceo-albis; anticis lineis quatuor nigris, plaga magna nigra ad medium marginis interni, supra late fulvo marginata cellulam intrante; posticis lineis septem nigris ab angulo anali radiantibus, lobulo anali fulvo, macula nigra albo circumcincta notata.

♀ alis multo pallidioribus, colore cæruleo interdum omnino absente.

Hab. MEXICO¹, Cordova (*Rümel*), Jalapa (*Höge*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*Hague*), Panzos, La Tinta, Panima, Chiacam, Cahabon (*Champion*), Pacific slope (*F. D. G. & O. S.*), Guatemala city, Zapote, Volcan de Atitlan, El Tumbador, San Isidro, El Reposo (*Champion*), Coban (*Von Türckheim*).

An abundant species in Mexico and Guatemala throughout the lowlands; but Mr. Champion took specimens as high as the city of Guatemala, an altitude of 5000 feet. It may be distinguished from the following species by the male having a silky spot on the upperside of the secondaries over the greater part of the cell and by the black spot of the primaries beneath having a broad edging of clear fulvous; this edging in *T. phænna* is narrower and of a dark chestnut colour, whilst in *T. phæa* and *T. leucogyna* the spot is wholly black. There is considerable diversity in the colour of the female as to the amount of blue on the upper surface, and we have a male from the Volcan de Atitlan which shows some white near the anal angle of the secondaries.

45. *Thecla phænna*, sp. n.

T. sitoni similis, sed colore cæruleo plerumque saturatiore, plaga posticarum sericea, haud cellulam intrante; subtus macula anticarum nigra castaneo supra marginata.

Hab. HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt, Janson*).

Evidently closely allied to *T. sito*, but differing in the points indicated above. It is a very common species in Nicaragua, where Belt obtained many specimens. With these a single male obtained by G. M. Whitely at San Pedro in Honduras agrees rather than with Guatemalan examples.

46. **Thecla phæa.** (Tab. LI. figg. 27, 28 ♂, 29 ♀.)

Panthiades sito, Butl. & Druce, P. Z. S. 1874, p. 356 (nec Boisduval).

T. sitoni similis, sed alis multo magis glaucescentibus plaga sericea in posticis nulla et subtus macula anticarum omnino nigra differt.

Hab. COSTA RICA (*Van Patten*), San Francisco, Irazu, Cache (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Calobre (*Arcé*).

Though, in describing this species, we have compared it with *T. sito*, its nearest ally is *T. leucogyna*, which has the black patch of the primaries beneath without any fulvous or chestnut edging. But the blue of the upper surface of the wings of *T. leucogyna* is of a much darker tint, and resembles that of *T. sito*. The much paler more glaucous blue of *T. phæa* renders it not difficult to distinguish, at least so far as regards the males. This species appears to be very common both in Costa Rica and in the State of Panama, and many specimens have come before us, including paired sexes. The figures are taken from specimens captured on the Volcan de Chiriqui.

In separating *T. sito* and its allies we may add that we have seventy-three specimens in our collection selected out of a considerably larger number.

8. No stigma; wings chiefly white, beneath with four black lines radiating from the anal angle of the secondaries. (Species 47.)

47. **Thecla togarna.** (Tab. LII. figg. 1, 2 ♂.)

Thecla togarna, Hew. Ill. Diurn. Lep. p. 85, t. 33. ff. 52, 53¹; Godm. & Salv. Trans. Ent. Soc. 1880, p. 125².

Panthiades togarna, Butl. & Druce, P. Z. S. 1874, p. 356³.

Thecla lincus, var., Hew. Ill. Diurn. Lep. t. 33. ff. 50, 51⁴.

Alis cretaceo-albis, anticis apice et margine externo late fuscis, macula subtriangulari supra ramum medianum secundum nigerrima supra eam interdum atomis variis nigris; posticis linea anteciliari et ciliis ipsis (præter ad apicem) fusco-nigris, angulo anali nigro albo maculato: subtus albidis, anticis margine externo et lineis quatuor transversis nigricantibus, tribus internis plus minusve abbreviatis, margine externo nigricante ad angulum analem intus cervino limbato; posticis marginibus externo et interno fusco-nigris, intus late cervino limbatis, lineis quatuor ab angulo anali radiantibus fusco-nigris.

♀ mari similis, macula discali nigra nulla, et posticis linea submarginali notatis.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Panima, Senahu, Panzos, San Juan in Vera Paz (*Champion*), Coban (*Von Türckheim*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*²), Irazu, Cache (*Rogers*); PANAMA, Volcan de Chiriqui, David, Bugaba, Tolé (*Champion*), Veraguas (*Arcé*), Lion Hill (*M'Leannan*).—COLOMBIA²; VENEZUELA¹; ECUADOR.

A species closely allied to *T. lincus* (Fabr.), but differing constantly in having no black margin to the submarginal rufous band of the secondaries beneath, and in the two discal bands of those wings being further apart.

The types of *T. togarna* were from Venezuela, whence we also have examples; these agree with our Central-American series. In the latter country it is a very common species as far north as the forests of Eastern Guatemala.

In the Cauca valley of Colombia the male has the black discal spot of the primaries confluent with the black margin, and this character is also seen in examples from Ecuador.

Hewitson seems hardly to have appreciated the differences between *T. togarna* and *T. lincus*, for he figures one of the former as a variety of the latter⁴. He places too much reliance on the black discal spot of the primaries being cut by the white second median branch, which is a very variable feature. The rufous submarginal band of the secondaries being bordered as in *T. lincus* with black, is a much more trustworthy character, and may be relied on as distinctive of the two insects. We have figured a male from Panama.

9. Wings beneath green. (Species 48–51.)

γ. An obsolete stigma on the primaries near the end of the cell; a single secondary filament. (Species 48–50.)

48. *Thecla herodotus*. (Tab. LII. figg. 3, 4 ♂, 5 ♀.)

Hesperia herodotus, Fabr. Ent. Syst. iii. p. 286¹.

Papilio herodotus, Donovan. Ins. Ind. t. 39. f. 2².

Thecla herodotus, Hew. Ill. Diurn. Lep. p. 205, t. 82. f. 680³.

Thecla leucania, Hew. Descr. Lyc. p. 33⁴; Ill. Diurn. Lep. p. 205⁵.

♂ alis griseo-purpureis, marginibus externis fusco-nigricantibus, lobulo anali posticarum rufescente: subtus viridissimis; anticis dimidio margini interno proximo griseo; posticis lobulo anali nigro, introrsum saturate ferrugineo, macula ejusdem coloris inter ramos medianos, ciliis quoque ferrugineis, macula nigra extrorsum alba venam submedianam attingente; fronte et oculorum ambitu viridibus.

♀ alis fuscis, ad basin glauco-cærulescentibus; subtus posticis maculis discalibus in linea positis ferrugineis, extrorsum albo limbatis.

Hab. MEXICO³, Presidio, Ventanas (*Forrer*), Cordova (*Rümel*), Jalapa (*W. Schaus*); GUATEMALA, Polochic and Chisoy valleys, Central valleys, Yzabal (*F. D. G. & O. S.*), San Gerónimo, Pantaleon (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*); PANAMA, Bugaba (*Champion*), Chiriqui, Veraguas, Calobre (*Arcé*), Lion Hill (*M. Leannan*).—COLOMBIA, VENEZUELA, and AMAZONS VALLEY.

A very abundant species in Central America, being found throughout our country from Southern Mexico to Panama, and in the mountains to an elevation of about 3000 feet. There is some variation in the tint of the blue colouring of the upper

surface; but this is probably due to the age of the specimens. Our figures represent a male from the Polochic valley, and a female from San Gerónimo, Guatemala.

49. **Thecla fusius**, sp. n. (Tab. LII. figg. 6, 7 ♂.)

♂ alis brunneis unicoloribus, subtus omnino *T. herodoti* similis fronte quoque viridi.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Chisoy and Polochic valleys (*F. D. G. & O. S.*); PANAMA, Chiriqui and Line of Railway (*Arcé*).

Except that the upperside is brown instead of glaucous-blue, this species differs in no way from *T. herodotus*, of which it possibly may be a chromatic variety. We have several specimens, all males, the female being unknown to us; that sex is probably undistinguishable from the female of *T. herodotus*. The figure represents a male from the Chisoy valley.

50. **Thecla pastor**. (Tab. LII. figg. 8, 9 ♂, 10 ♀.)

Strymon pastor, Butl. & Druce, Cist. Ent. i. p. 105¹; Butl. Lep. Ex. p. 157, t. 57. f. 5².

♂ alis cyaneis, margine externo nigricante, lobulo posticarum anali producto: subtus viridibus; anticis dimidio ad marginem internum fuscis; posticis lobulo anali et lunulis quinque ferrugineis, albo atomatis, linea discali obsoleta, ferruginea, fracta, extrorsum albo atomata.

♀ alis fuscis, area interna cæruleo lavata, subtus mari similis.

Hab. MEXICO, Ventanas (*Forrer*), Jalapa (*Höge & W. Schaus*); GUATEMALA, Polochic valley, Central valleys (*F. D. G. & O. S.*), Purula, Dueñas (*Champion*), Coban (*Von Türckheim*); COSTA RICA (*Van Patten*¹²), San Francisco, Rio Sucio, Cache, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).

Messrs. Butler and Druce described this species from specimens in Van Patten's collection from Costa Rica. We have since received other examples, including the males, from that country, and thence northwards to Southern and Western Mexico. The species is clearly allied to *T. herodotus*, but the male is of a much more brilliant blue on the upper surface of the wings; the submarginal row of lunules on the under surface of the secondaries is also a distinguishing feature. A male from Jalapa, Mexico, and a female from Purula, Guatemala, are figured.

δ. No stigma; no secondary filament. (Species 51.)

51. **Thecla agricolor**. (Tab. LII. figg. 11, 12 ♂.)

Strymon agricolor, Butl. & Druce, Cist. Ent. i. p. 105¹; Butl. Lep. Ex. p. 158, t. 57. f. 4².

♂ alis plumbeo-cæruleis, costa et marginibus externis nigricantibus, lobulo anticarum anali rubido: subtus viridibus, linea communi discali lunulata rubida, marginibus externis anticarum anguste, posticarum late, albo atomatis, lobulo anali immaculato; posticis ad basin nigricante-rufis.

♀ mari similis, sed alis pallidioribus.

Hab. MEXICO, Jalapa (*Höge, W. Schaus*); GUATEMALA (*F. D. G. & O. S., Champion*),

Dueñas (*Champion*); COSTA RICA (*Van Patten*^{1 2}), Irazu, Rio Sucio (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*).

This well-marked species may readily be distinguished from those with green on the underside of the wings in having the secondaries dark at the base, and with a broad rufous outer margin sprinkled with white scales.

T. remus and *T. longula** are allied species; but both of them have the upperside of the wings in the male brilliant blue. A male from Jalapa, Mexico, is figured.

10. Wings beneath drab or ochraceous. (Species 52.)

52. *Thecla jada*. (Tab. LII. figg. 13, 14 ♂.)

Thecla jada, Hew. Ill. Diurn. Lep. p. 87, t. 34. ff. 67, 68¹.

♂ alis cæruleis; anticis costa et dimidio apicali fuscescentibus, macula triangulari ad cellulæ finem fusco-nigra; posticis maculis submarginalibus indistinctis nigris, ea lobulo anali proxima et lobulo ipso rubidis, margine externo ipso nigro, introrsum albo limbato, ciliis albis: subtus pallide gilvis, lineis quatuor communibus transversis fuscis, duabus submarginalibus (una discali in posticis linea gilva includente) quarta per cellulæ finem, lobulo anali rufo puncto nigro, macula juxta eum quoque rufa.

♀ mari persimilis, sed major et colore cæruleo alarum paginæ superioris paullo dilutiore.

Hab. MEXICO (*Deppe*), Presidio (*Forrer*), Jalapa (*Höge*, *W. Schaus*), Cordova (*Rümeli*), Oaxaca (*Fenochio*); GUATEMALA, Polochic and Chisoy valleys (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S.*, *Champion*), Dueñas (*Champion*), Coban (*Von Türckheim*).

Originally described from Mexican specimens, whence we also have examples from as far north as Presidio near Mazatlan. In Guatemala *T. jada* is very common near Dueñas and elsewhere. The tail of the secondaries is barely developed in southern individuals, but in Mexican examples it is much more evident. A male from Jalapa, Mexico, is figured.

h'''. Anal angle of secondaries less elongated, the anal lobe less prominent.
(Species 53–209.)

α'''. One subcostal branch emitted before the end of the cell of the primaries and one after it. (Species 53, 54.)

53. *Thecla janias*. (Tab. LII. fig. 15 ♂.)

Papilio janias, Cram. Pap. Ex. t. 213. D, E¹.

Papilio hassan, Stoll, Suppl. Cram. Pap. Ex. t. 38. ff. 4, 4 D².

Thecla cecina, Hew. Descr. Lyc. p. 34³; Ill. Diurn. Lep. p. 202⁴.

♂ alis supra saturate cyaneis; anticis costa late, margine externo et venis omnibus nigris, stigmatibus nigro ad

* This species was originally described as from Mexico (Hew. Descr. Lyc. p. 34), but subsequently (Ill. Diurn. Lep. p. 200) stated to be from New Granada, Ecuador, and Bolivia. We have specimens from Colombia and Venezuela, but none from our country.

cellulæ finem: subtus læte viridibus certa luce aureo tinctis; posticis linea discali obsoleta nigra, macula inter ramos medianos nigra (interdum rufa), ciliis nigris; fronte, palpis, oculorum ambitu nitide gramineis; thorace et abdomine supra cyaneis.

♀ alis supra fuscis plumbeo indutis, aliter mari similis.

Hab. MEXICO, Paso de San Juan (*W. Schaus*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*³), Sabo, Mirandilla, Pantaleon (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Calobre (*Arcé*).—AMAZONS VALLEY; GUIANA; SOUTH-EAST BRAZIL.

There seem to be two forms of this widely-distributed insect. In the typical *T. janias* the spot on the underside of the secondaries, near the anal angle, is wholly black. With these we find examples in which the spot is red, with a dark centre. This latter form was figured by Stoll under the name of *Papilio hassan*; but, as the two insects are found together throughout a large portion of their range, and as the spot varies in size, we are unwilling to divide the species on so slight a character.

Thecla cecina was based by Hewitson³ upon specimens obtained by us in the valley of the Polochic, Guatemala; but he subsequently placed this name as a synonym of *T. janias*⁴. Our figure represents the upperside of a male from the Polochic valley.

54. *Thecla talayra*. (Tab. LII. figg. 16, 17 ♂.)

Thecla talayra, Hew. Descr. Lyc. p. 1¹; Ill. Diurn. Lep. p. 130, t. 52. ff. 286, 287².

♂ *T. temesæ* affinis, sed alis supra multo magis cæruleis, stigmatе anticarum magis obvio: subtus cretaceo-albis; anticis linea submarginali fusca, ad angulum analem minus ochracea, rubro potius notata.

♀ alis cærulescente-fuscis (haud brunneis).

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Teleman, Panima, San Isidro (*Champion*); NICARAGUA, Chontales (*Belt*); Costa Rica (*Van Patten*), Cache (*Rogers*); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Calobre (*Arcé*).—BRAZIL^{1 2}.

T. talayra was described by Hewitson from Brazilian examples; but we find it to be much more common throughout Central America, from Guatemala to Panama, where, indeed, it is very abundant in all sections of the country. We have only one Brazilian specimen, a female, which differs slightly from our series from Central America in that the yellow patch at the anal angle of the secondaries is more continuous, and in this respect resembles that of *T. temesa*.

The species does not appear to be found in the Amazons valley, where very possibly *T. temesa* takes its place. A male from Bugaba is figured.

b'''. Both subcostal branches emitted before the end of the cell of the primaries.
(Species 55–209.)

*a*⁵. Wings with an alar stigma of some kind either as a stigma at the end of the cell of the primaries above, or as a stigmatic patch below the median nervure beneath.

a^6 . A single alar stigma at the end of the cell of the primaries; a single marginal filament; costa of secondaries normal.

1. T. PALEGON section.

55. *Thecla palegon*.

Papilio palegon, Cram. Pap. Ex. t. 282. C, D¹.

Papilio mytilus, Cram. Pap. Ex. t. 380. B, C².

Thecla juicha, Reakirt, Pr. Ac. Nat. Sc. Phil. 1866, p. 338³.

Alis sericeo-cyaneis; anticis costa, apice et margine externo fuscis, stigmatibus fusco ad cellulæ finem; posticis dimidio margini interno proximo et linea submarginali cæruleo dense atomatis, margine ipso fusco; subtus rosaceo-fuscis, lineis tribus obscurioribus communibus transfasciatis, una submarginali lunulata, altera discali sinuata, extrorsum albido limbata, tertia per cellulas, lineolis quoque alteris ejusdem coloris ad cellularum fines; posticis lobulo anali et plaga magna ad medium marginis externi ochraceis, macula inter eos nigricante albido atomata.

♀ alis fuscescentibus; posticis cæruleo vix lavatis: subtus mari similis, maculis omnibus magis obviis.

Hab. MEXICO, near Vera Cruz (*W. H. Edwards*), Jalapa (*Höge*, *W. Schaus*), Cordova (*Rümeli*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Chacoj, San Gerónimo, Cubulco, Dueñas (*Champion*), Coban (*Von Türckheim*); NICARAGUA, Chontales (*Belt*); COSTA RICA, San Francisco (*Rogers*); PANAMA, Chiriqui (*Arcé*, *Ribbe*), Calobre (*Arcé*), Tolé (*Champion*), Panama city (*Ribbe*).—SOUTH AMERICA, Colombia to Guiana and South-east Brazil.

One of the most widely-spread species of this family in tropical America, ranging from Southern Mexico to South-eastern Brazil, and equally common everywhere; it is, moreover, very uniform in its markings, showing but little variation.

Thecla juicha, Reakirt³, was, we have little doubt, based upon a female of this species.

2. T. METON section.

56. *Thecla meton*.

Papilio meton, Cr. Pap. Ex. t. 201. D, E¹.

Alis lactescente-albis, rosaceo-lavatis; anticis ad apicem late, posticis ad marginem externum fusco-nigricante marginatis, stigmatibus ultra cellulam albo: subtus ochraceis; anticis fasciis quatuor fuscis transvittatis, harum duabus per cellulam; posticis oculo nigro ochraceo pupillato ad costæ basin, fasciis transversis ab angulo anali radiantibus ochraceo-fuscis, angulo anali albido atomato et nigro marginato.

♀ mari similis, sed colore alarum rosaceo absente.

Hab. MEXICO, Cordova (*Rümeli*, *Höge*), Jalapa (*Höge*, *W. Schaus*); GUATEMALA, Choctum, Polochic valley (*Hague*), San Gerónimo, Cubulco (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu, San Francisco (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriqui, Calobre (*Arcé*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA, Colombia to Guiana¹, Amazons valley and Brazil.

A very abundant species, and distributed as widely as any member of the family in tropical America. We have specimens from all parts of our country from Southern

Mexico southwards. In Guatemala it is found at elevations ranging between 3000 to 4000 feet above the sea. It has no near allies, and is extremely constant in its coloration throughout its wide range.

57. **Thecla atesa.** (Tab. LII. figg. 18, 19 ♂.)

Thecla atesa, Hew. Ill. Diurn. Lep. p. 79, t. 31. ff. 31, 32¹.

Alis nigricantibus; anticarum margine interno ad cellulæ medium et area posticarum interna angulum analem adeunte cæruleis, stigmatе cellulari fusco: subtus pallide brunneis, anticis macula basali, altera ad cellulæ finem et duabus ad marginem externum rufescentibus; posticis macula subcostali nigra fulvo circumcincta, linea supra cellulam, altera per eam et marginis externi dimidio apicali rufescentibus, linea a vena submediana ad ramum medianum secundum arcuata albida, introrsum late nigricante marginata, area anali nigricante viridi-albo atomata, angulo ipso nigro introrsum albo notato, linea introrsum fusca, extrorsum fulva, angulo anali subparallela; antennis nigricantibus, vix albo annulatis, apicibus fulvis; abdomine subtus fulvo.

Hab. PANAMA, David (*Champion*), Chiriqui (*Ribbe*).—AMAZONS¹.

This species was described by Hewitson from a single specimen taken by Mr. Bates during his journey to the Tapajos river. Mr. Champion captured a good series of examples near David in the State of Panama. The blue colouring on the upper surface of the wings is rather more extensive in these specimens than in the type before us, and the wings are perhaps slightly less elongated; but these differences are hardly of specific value. Our figure represents a male from David, Chiriqui.

3. T. ATENA section.

58. **Thecla atena.**

Thecla atena, Hew. Ill. Diurn. Lep. p. 92, t. 36. f. 93, t. 37. f. 101¹.

♂ alis nitidissime cyaneis; anticis costa, apice et margine externo nigricantibus, stigmatе parvo ad cellulæ finem: subtus schistaceo-fuscis; anticis linea transversa ultra cellulam alba utrinque nigro irregulariter limbata; posticis macula inter venam costalem et subcostalem albo pupillato, lineis duabus maculosis submarginalibus nigris, interiore interrupta, albo extrorsum limbata, exteriorе introrsum viridi-argenteo marginata, angulo anali nigro, præter lobulo anali viridi-argenteo atomato.

♀ mari similis, quoad picturam paginæ alarum inferioris, supra alis fusco-nigris, ad basin tantum cæruleo lavatis.

Hab. GUATEMALA, Yzabal (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*Zuhn*).—SOUTH AMERICA, Venezuela and Amazons valley¹.

We have a single female from Guatemala, which we assign to this species, and three others of the same sex from Nicaragua, but from the State of Panama we have also males. These latter agree with specimens from the Amazons valley, whence the type was derived.

59. **Thecla hypsea**, sp. n. (Tab. LII. figg. 20, 21 ♂.)

♂ alis cyaneis viridi vix tinctis, extus nigro limbatis; anticis stigmatе supra cellulæ finem: subtus glaucofuscescentibus, ad basin anticarum castaneis; posticis linea maculosa submarginali nigra, extrorsum albo limbata, lobulo anali nigro et juxta eum macula nigra albo atomata.

♀ nobis ignota.

Hab. PANAMA, Chiriqui (*Trötsch*).

Allied to *T. ophelia* from the Amazons valley, but differing chiefly in the much narrower dark margin, especially towards the apex. We have described and figured this species from a single male specimen lent us by Dr. Staudinger.

60. *Thecla minyia*.

Thecla minyia, Hew. Ill. Diurn. Lep. p. 91, t. 38. ff. 115, 116¹.

♀ alis supra fuscis, intus cyaneis: subtus ochraceo-fuscis, ad basin rubidis; anticis linea ultra cellulam obliqua alba; posticis macula inter venam costalem et subcostalem nigra, infra albo-limbata, lineis duabus valde irregularibus et interruptis ad angulum analem nigris, interiore extrorsum, exteriori introrsum albo limbatis, angulo anali nigro, inter ramos medianos albido atomato.

Hab. PANAMA, Chiriqui (*Ribbe, Trötsch*).—AMAZONS VALLEY¹.

We refer two female specimens lent us by Dr. Staudinger to this species, but with some hesitation, as we have no female specimens of the true *T. minyia* with which to compare them. The male differs above in the usual way, the outer margin and apex of the wings being broadly black, and the primaries having a single brand over the end of the cell. Beneath the male has more red at the base of the wings, and there are two additional white spots margined with black beyond the red base of the primaries.

61. *Thecla janthina*. (Tab. LII. figg. 22, 23 ♂.)

Thecla janthina, Hew. Ill. Diurn. Lep. p. 93, t. 37. ff. 104, 105¹.

♂ alis nitidissime cæruleis; anticis costa, apice late et posticis margine externo nigris: subtus schistaceis, anticis linea transversa ultra cellulam et maculis inter eam et marginem externum albis; posticis macula elliptica inter venam costalem et subcostalem alba utrinque nigro limbata, lineis duabus submarginalibus maculosis, interiore multo interrupta extrorsum albo marginata, exteriori introrsum albido limbata, ad angulum analem cervino extrorsum quoque marginato, macula submarginali inter ramos medianos nigra, lobulo anali quoque nigro inter eos frequenter viridi-argenteo atomata.

Hab. GUATEMALA, Choctum and forests of Northern Vera Paz¹ (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Chiriqui (*Zahn*), Bugaba, San Feliz (*Champion*).—ECUADOR; AMAZONS VALLEY; GUIANA; NORTHERN BRAZIL.

This brilliant species was described by Hewitson from specimens obtained by us from Guatemala¹. It has since been traced throughout Central America to Ecuador, the Amazons valley, Guiana, and Northern Brazil. It is nearly allied to *T. atena* and *T. sista*; from the former it differs in having more elongated primaries, which are rounder at the apex; it has, moreover, no brand on the upperside of these wings. *T. sista* has a large dull discal patch on the primaries, of which we see no trace in the present species. In Guiana both *T. janthina* and *T. sista* are found together, Mr. Whitely having recently sent us specimens of both species from the Roraima district of Guiana. We have figured a male from Bugaba.

4. T. POLYBETES section.

62. *Thecla m-album*.

Thecla m-album, Boisd. & Lec. Lép. Am. Sept. p. 86, t. 26¹; Strecker, Cat. N. Am. Butt. p. 86².

♂ alis supra cyaneis, extus nigro limbatis; anticis stigmatē parvo ad cellulæ finem; posticis lobulo anali testaceo: subtus purpureo-fuscis; anticis lineis duabus transversis fuscis notatis, una ultra cellulam albo extrorsum marginata, altera submarginali introrsum albido limbata; posticis puncto albo fusco introrsum limbato sub medio venæ costalis, ultra cellulam lineis duabus, interiore literam **M** formante introrsum fusca, extrorsum albo limbata, exteriorē submarginali nigricante, introrsum albo marginata, macula magna submarginali inter ramos medianos rubra puncto nigro, lobulo anali nigro, juxta eum macula nigra albo atomata, et supra eos macula rubra.

♀ mari similis, colore alarum cyaneo magis restricto.

Hab. NORTH AMERICA¹, Southern States².—MEXICO, Ciudad in Durango (*Forrer*), Orizaba (*Sallé*), Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo, Cubulco (*Champion*), Choctum (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*).—VENEZUELA.

This species of the Southern States is found throughout our region from Mexico to Costa Rica, and we have a specimen said to have come from Venezuela. According to American writers the larva feeds upon *Astragalus* and *Quercus*.

63. *Thecla orgia*. (Tab. LII. figg. 24, 25 ♂, 26 ♀.)

Thecla orgia, Hew. Ill. Diurn. Lep. p. 102, t. 41. ff. 148, 149, t. 43. f. 176¹.

T. polibeti similis, sed alis supra haud purpureo tinctis: subtus anticis fascia transversa rectiore et extrorsum albo distincte marginata, fascia altera obscura submarginali; posticis macula inter ramos medianos a margine magis distante.

Hab. MEXICO, Cordova (*Rümelī*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Telemán, San Gerónimo (*Champion*); HONDURAS (*mus. Staudinger*); COSTA RICA (*Van Patten*); PANAMA, Bugaba (*Champion*), Veraguas (*Arcé*).—AMAZONS VALLEY; GUIANA.

Mexican and Guatemalan specimens differ slightly from the type and from examples from Costa Rica and Panama, in that the subcostal spot of the secondaries beneath is much smaller, but we do not notice any other difference of importance.

Our figures represent a male from the Polochic valley and a female from San Gerónimo, Guatemala.

64. *Thecla epytus*, sp. n. (Tab. LII. figg. 27, 28 ♂, 29 ♀.)

♂ alis supra nigricantibus, area interna ad marginem internum cyanescentibus; anticis stigmatē ad cellulæ finem; posticis angulo anali late et margine externo nigris: subtus iis *T. orgiæ* similibus, lineola nigra ad cellulam posticarum finem.

♀ mari similis, sed alis supra introrsum viridi-cærulescentibus, corpore subtus cervino.

Hab. PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe*).

This species is evidently allied to *T. arindela* of Nicaragua, but may at once be distinguished by the greater restriction of the blue on the upperside of the primaries,

the brand of the primaries being beyond the blue colour instead of being within its limits; there are differences too on the underside. Mr. Champion captured our male near Bugaba, and Herr Ribbe obtained a female in the same district; the latter has been lent us by Dr. Staudinger. Both are figured.

65. *Thecla arindela*.

Thecla arindela, Hew. Ill. Diurn. Lep. p. 172, t. 67. ff. 491, 492¹.

Alis cyaneis; anticis costa, margine externo et apice late nigricantibus, stigmatibus fusco ad cellulæ finem; posticis angulo apicali late, margine externo anguste, nigricantibus: subtus fuscis; anticis linea transversa fere recta discali alba; posticis quoque linea discali alba (introrsum nigricante limbata) ad marginem internum angulata, linea altera submarginali nigra, introrsum cæruleo-albido limbata, macula elongata inter venas costalem et subcostalem alba, introrsum nigra, lobulo anali nigro, macula inter ramos medianos nigra, introrsum rufo cincta; abdomine infra rufescente.

Hab. NICARAGUA, Chontales (*Belt*¹).

A close ally of *T. epytus*, but differing in having the blue of the upper surface of the wings more extensive, and beneath by the white discal band of the primaries, and other minor characters. Hewitson's type from Nicaragua is a male, and the only one we have seen.

66. *Thecla polibetes*.

Papilio polibetes, Cram. Pap. Ex. t. 341. B, C¹.

Thecla polibetes, Hew. Ill. Diurn. Lep. p. 99, t. 32. f. 47².

Thecla zoe, Reakirt, Pr. Ac. Nat. Sc. Phil. 1866, p. 333³.

♂ alis nitide purpureo-cyaneis; anticis costa, basi et marginibus externis fusco-nigricantibus, stigmatibus ad cellulæ finem et infra eam plaga magna nigra: subtus schistaceo-fuscis; anticis maculis septem ultra cellulam in linea sinuata transversim positis; posticis macula nigra sub vena costali, linea maculosa arcuata fracta, margini externo plus minusve subparallela, nigra, extrorsum albo limbata, linea altera extra eam indistincta, extrorsum nigro, introrsum albo atomata, macula submarginali inter ramos medianos nigra, introrsum rubro marginata, lobulo anali nigro.

♀ alis fuscis, area interna cærulescente: subtus mari similis.

Hab. MEXICO², Milpas in Durango (*Forrer*), Cordova (*Rümelin*), Jalapa (*W. Schaus*), near Vera Cruz (*W. H. Edwards*³), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley, Vera Paz (*F. D. G. & O. S.*), Coban (*Von Türckheim*); PANAMA, Bugaba (*Champion*).—SOUTH AMERICA, Colombia to the Amazons valley and Brazil.

We have a good series of specimens of this species ranging from Southern Mexico to Matogrosso in Brazil, which do not differ materially from each other. The southern specimens appear to be a little more purple in the colour of the wings on the upper-side, but the difference is slight. Its altitudinal range extends from the sea-level to a height of about 3000 feet.

67. *Thecla ortygna*. (Tab. LIII. figg. 1, 2 ♂.)

Papilio ortygna, Cram. Pap. Ex. t. 243. B.

♂ alis nitide cyaneis; anticis extus nigro marginatis, stigmatibus parvo ad cellulæ finem; posticis quoque nigro
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marginatis, intus cærulescentioribus: subtus albido-rosaceo tinctis; anticis macula costali, altera duplici ad cellulæ finem nigris, extrorsum albo limbatis; posticis maculis nigris cellulam circumpositis, duabus costæ proximis maximis, reliquis irregulariter conjunctis et extrorsum albo marginatis, linea submarginali nigra, ad angulum apicalem lunulata, ad angulum analem angulosa, hic late illic anguste argenteo-albo marginata, macula ad rami mediani finem nigra, lobulo anali nigro, inter eos maculis fuscis viridi-argenteo dense atomatis.

♀ mari similis, colore alarum cæruleo pallidiore et multo magis restricto.

Hab. MEXICO, Jalapa (*W. Schaus*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); COSTA RICA, San Francisco, Irazu (*Rogers*); PANAMA (*Ribbe*).—SOUTH AMERICA, Trinidad and the Amazons valley to Guiana and S.E. Brazil.

A species sparingly, though very widely, distributed in Central America, but in South America it spreads over the whole of the tropical portion as far as South Brazil. Its altitudinal range extends from the sea-level to a height of 3000 to 4000 feet. This species appears to be very isolated, having no near allies with which we are acquainted. A male from Irazu is figured.

5. T. PHCENISSA section.

68. *Thecla phoenissa*. (Tab. LIII. figg. 3, 4 ♂.)

Thecla phoenissa, Hew. Ill. Diurn. Lep. p. 100, t. 40. ff. 139, 140¹.

♂ alis fusco-nigris, area interna viridescentibus; anticis stigmatibus ad cellulæ finem ultra colorem viridem: subtus fuscis; anticis fasciis duabus albis, una transversa ultra cellulam, altera submarginali abbreviata, ad apicem haud extensa; posticis macula alba venam costalem intus attingente, fasciis duabus margine externo subparallelis, una per cellulæ finem (hic triplici) perfracta, altera continua (sed bene undulata) ad angulum analem extrorsum fusco marginata, macula inter ramos medianos rubra, extrorsum nigro pupillata, lobulo anali nigro et juxta eum macula fusca sparse albido atomata.

♀ mari similis, sed alis supra viridi-cæruleo vix tinctis.

Hab. NICARAGUA, Chontales (*mus. Hew.*); PANAMA, Veraguas (*Arcé*), Chiriqui (*Ribbe*).—AMAZONS VALLEY¹.

This species was described from specimens obtained at Pará, whence we have examples, and from other points in the valley of the Amazons. With these our insects from the State of Panama agree in every respect. A male from Veraguas is figured.

6. T. JEBUS section.

69. *Thecla jebus*. (Tab. LIII. figg. 5, 6 ♂, 7 ♀.)

Polyommatus jebus, Godt. Enc. Méth. ix. p. 639¹.

Sithon jebus, Hübn. Samml. ex. Schmett. iii. t. —².

♂ alis nitide cæruleis, extus fusco marginatis; anticis stigmatibus parvo ad cellulæ finem; posticis lobulo anali testaceo tincto: subtus fuscis, anticarum apice et posticis omnino nigricante-fusco et albido marmoratis; anticis area discali certa luce cærulescentibus; posticis macula inter ramos medianos submarginali et lobulo anali nigris, introrsum testaceo marginatis.

♀ alis fuscis, intus glaucescentibus, aliter mari similis.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Vera Paz, Chisoy valley (*Hague*), San

Gerónimo (*Champion*); PANAMA, Chiriqui (*Trötsch*).—SOUTH AMERICA, from Peru and Amazons valley to Guiana² and South Brazil.

Compared with South-Brazilian specimens, the true *P. jebus* of Godart, Guatemalan examples differ in having the anal lobe of the secondaries more rufous and beneath the submarginal black spot of the secondaries as well as that of the anal angle lined inwardly with the same colour, but the differences are hardly of specific value.

As will be seen above, *T. jebus* is found throughout Tropical America, but as yet we have seen specimens from Mexico and Guatemala only in our area.

We have figured a male from Vera Paz, and a female from San Gerónimo, Guatemala.

7. T. BRESCIA section.

70. *Thecla brescia*. (Tab. LIII. figg. 8, 9 ♂, 10 ♀.)

Thecla brescia, Hew. Desc. Lyc. p. 13; Ill. Diurn. Lep. p. 119, t. 50. ff. 260, 261¹.

Thecla thoana, Hew. Ill. Diurn. Lep. p. 172, t. 67. f. 490².

Alis plumbeo-cæruleis; anticis apice et margine externo fuscis, costa basin versus rubro marginata, stigmatæ ad cellulæ finem; posticis fusco limbatis, macula indistincta fusca submarginali inter ramos medianos, lobulo anali puncto rubro: subtus pallide brunneis, linea discali communi introrsum fusca extrorsum alba in posticis fracta, linea altera submarginali fusca albo introrsum atomato, lobulo anali nigro, squamis paucis rubris introrsum notato, juxta eam macula inter ramos medianos rubra puncto nigro, inter eos macula fusca albo atomata.

♀ alis fuscis, posticis præcipue ad angulum analem canescentibus, maculis duabus submarginalibus fuscis notatis: subtus mari similis, sed alis pallidioribus et lineis omnibus magis distinctis.

Hab. MEXICO¹, Ciudad in Durango (*Forrer*), Jalapa (*W. Schaus, Höge*), Cordova (*Rümeli*), Oaxaca (*Boucard*); GUATEMALA, Polochic valley, San Gerónimo (*F. D. G. & O. S.*); HONDURAS (*mus. Staudinger*); NICARAGUA (*mus. Hewitson*²).

Hewitson in describing this species suggests that it is perhaps only a variety of *Thecla stagira*, but the brand of the primaries being single and not double sufficiently marks its distinction. We have a good series of specimens both from Mexico and Guatemala. Some of our Guatemalan specimens were taken at an elevation of 3000 feet in the mountains.

The type of *T. thoana* is a female, and hardly differs from our Guatemalan examples of that sex attributed to *T. brescia*. Specimens from Jalapa are figured.

71. *Thecla orses*, sp. n. (Tab. LIII. figg. 11, 12 ♂.)

T. bresciæ similis et alis supra ejusdem coloris, sed anticis ad apicem latius fuscis: subtus maculis ad angulum analem ochraceis haud rubris ut in specie citata.

Hab. GUATEMALA, San Gerónimo (*Champion*).

A single male specimen of this species, which we describe and figure, was taken by Mr. Champion; differs from *T. brescia* as pointed out above. We know nothing of the female, which will probably be found to resemble that of the allied species, except as regards the colour of the spots near the anal angle of the secondaries beneath.

72. *Thecla vibidia*. (Tab. LIII. figg. 13, 14 ♂.)

Thecla vibidia, Hew. Ill. Diurn. Lep. p. 119, t. 49. ff. 242, 243¹.

Alis obscure cæruleis, marginibus externis late fusco-nigricantibus; anticis cellula et area infra eam purpurascens, costa et apice late fusco-nigris, stigmatibus fusco ad cellulæ finem: subtus fuscis; anticis lunulis evanescentibus discalibus introrsum fuscis, extrorsum albidis; posticis linea discali eodem modo picturata, fracta, ad marginem internum angulata, macula sub medio costæ introrsum fusca, extrorsum albida, linea altera submarginali obsoleta fusca, introrsum albido vix limbata, macula rubra inter ramos medianos puncto nigro instructa, lobulo anali nigro introrsum rubro cincto.

♀ mari similis, alis supra plumbescente-cæruleis, marginibus fuscis: subtus omnino pallidioribus.

Hab. MEXICO, Ciudad in Durango (*Forrer*); GUATEMALA, San Gerónimo (*Champion*), Polochic valley (*F. D. G. & O. S.*).—AMAZONS VALLEY¹.

Mexican and Guatemalan examples agree with the type in the British Museum, a male from the Amazons valley. Our figure represents a male from San Gerónimo.

73. *Thecla ligurina*. (Tab. LIII. figg. 15, 16.)

Thecla ligurina, Hew. Ill. Diurn. Lep. p. 181, t. 71. ff. 541, 542¹.

T. lydi similis, sed alis supra multo magis purpurascens, stigmatibus cellulari quoque multo minore: subtus lineis posticarum duabus submarginalibus ad costam magis divergentibus.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*¹); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*); Chitra (*Arcé*).

Though closely allied to both *T. lyde* and *T. voltinia*, this species may readily be distinguished by the more purple cast of the upper surface of its wings. Three males from the valley of the Polochic and a male and two females from the State of Panama were all that we had seen, besides the female from which Hewitson's description and figure were taken, till Mr. Schaus brought his Mexican specimens before us. We now give a figure of a male from the Polochic valley.

74. *Thecla lyde*, sp. n. (Tab. LIII. fig. 17 ♂.)

♂ alis plumbeo-cyaneis; anticis apice late et margine externo nigricantibus, stigmatibus nigro ad cellulæ finem: posticis margine externo anguste nigricante, macula rubra ad angulum analem nulla: subtus obscure schistaceis; anticis immaculatis; posticis lineis duabus maculosis submarginalibus, interiore interrupta, extrorsum albo marginata, exteriori ad angulum apicalem evanescente utrinque albo marginata, macula inter ramos medianos introrsum late rubro marginata, colore albo absente, lobulo anali extrorsum nigro introrsum rubro.

♀ mari sat similis, alis supra obscure cæruleis, apicibus et marginibus externis nigricantibus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*), Coban (*Von Türckheim*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*).

This species is allied to *T. voltinia* of the Amazons valley, but may be readily distinguished in both sexes by the absence of red on the upperside at the anal lobe of the secondaries. It is apparently a scarce species, four examples, two of each sex, being all that we have seen of it. We figure the underside of a male from the Polochic valley.

8. T. CUPENTUS section.

75. *Thecla cupentus*.

Papilio cupentus, Cram. Pap. Ex. t. 337. F, G¹.

Thecla cupentus, Hew. Ill. Diurn. Lep. p. 98².

♂ alis fuscis; anticis marginem internum versus cæruleis, stigmatem magno ad cellulæ finem; posticis (præter margine) cæruleis: subtus fuscis, fascia submarginali et lineis duabus communibus discalibus albis, in anticis marginem internum versus conjunctis, exteriore extrorsum fusco (ad angulum posticarum analem versus nigro) limbata; posticis quoque lineola alba ad cellulæ finem, lobulo anali nigro, macula magna inter ramos medianos fulva, puncto nigro.

♀ mari similis, sed alarum colore cæruleo dilutiore.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA, Cache (*Rogers*); PANAMA (*Ribbe*).—SOUTH AMERICA to Ecuador, Amazons valley¹, and Guiana².

This is a readily recognized species, the distinct white bands beneath and the short band at the end of the cell of the secondaries, making a kind of loop with the inner band, are very distinctive. *T. cupentus* enjoys a wide range, but we can see no essential difference between our Central-American specimens and those from the valley of the Amazons.

9. T. AZURINUS section.

76. *Thecla azurinus*. (Tab. LIII. figg. 18, 19 ♂.)

Bithys azurinus, Butl. & Druce, Cist. Ent. i. p. 107¹; Butl. Lep. Ex. p. 159. t. 57. f. 11².

♂ alis cyaneis; anticis costa, apice et margine externo nigris, stigmatem ad cellulæ finem fulvo; posticis, costa late, margine externo anguste nigris, margine interno albicante: subtus cinereis, linea communi undulata discali alba in posticis fracta; posticis viridescente lavatis, lineis duabus submarginalibus albis, margine ipso nigricante et linea intra eam alba, lobulo anali nigro, macula inter ramos medianos quoque nigra, introrsum rufo marginata.

♀ nobis ignota.

Hab. COSTA RICA (*Van Patten*^{1 2}).

The type specimen of this species, which we figure, is the only one we have yet met with. The species seems very distinct, the peculiar greenish tint on the secondaries beneath forming a good differential character.

10. T. TEMESA section.

77. *Thecla temesa*.

Thecla temesa, Hew. Descr. Lyc. p. 1¹; Ill. Diurn. Lep. p. 130, t. 52. ff. 284, 285².

♂ alis indicis extus regulariter nigro marginatis; anticis stigmatem ad cellulæ finem; posticis lobulo anali puncto ochraceo: subtus sordide cretaceo-albis, linea communi discali nigra, extrorsum albo, introrsum flavo limbata, ad marginem posticarum internum angulata, puncto ad costam subrotundato, angulum apicalem paullo propiore, plaga magna a ramo mediano usque ad angulum analem ochraceo, lineola indistincta submarginali inter eam et angulum apicalem fusca, lobulo anali nigro, supra eam macula alba, altera juxta eam nigra albo atomata, tertia quoque nigra inter ramos medianos, margine externo nigro, introrsum albo limbato.

♀ alis supra brunneis, aliter mari similis.

Hab. COSTA RICA (*Van Patten*).—SOUTH AMERICA, Venezuela to Amazons valley^{1 2} and Guiana.

We have a single male Costa-Rican example which formed part of Van Patten's collection, no other Central-American specimen having come under our notice. The species appears to be very common throughout the Amazons valley.

11. T. MYCON section.

78. *Thecla mycon*, sp. n. (Tab. LIII. figg. 20, 21 ♂, 22 ♀.)

♂ alis nitidissime cyaneis; anticis costa, apice et margine externo anguste nigris, stigmatē magno ad cellulæ finem; posticis margine externo anguste nigro, area abdominali fusco: subtus griseo-fuscis, linea communi discali, introrsum fusca, extrorsum alba ad marginem posticarum internum angulata; posticis lobulo anali nigro, introrsum rufo notato, macula nigra inter ramos medianos introrsum late rufo limbato, inter eos macula fusca dense albo atomata.

♀ alis supra fuscis, pallide cæruleo lavatis: subtus mari similis.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Teleman (*Champion*), Choctum (*F. D. G. & O. S.*), San Gerónimo, San Isidro (*Champion*); PANAMA, Bugaba (*Arcé*), Chiriqui (*Trötsch*), Calobre (*Arcé*).—COLOMBIA.

An abundant species in Guatemala in the lowlands on both sides of the mountain-range up to an elevation of about 3000 feet. Southward it appears to become scarcer, as we have no specimens from Costa Rica or Nicaragua, and only two or three individuals from the State of Panama. It does not appear to have any very close ally.

We note a slight variation in the markings of the underside in different individuals, chiefly as regards the colour of the spot between the median branches of the secondaries, which varies from rufous to yellow, and there are a few other minor points. It does not appear, however, that these differences are of specific value, as we trace their transition from one form to another, and this without regard to locality. The difference may possibly be attributed to seasonal broods.

We figure a male from San Gerónimo and a female from Chiriqui.

12. T. EREMA section.

79. *Thecla erema*. (Tab. LIII. figg. 23, 24 ♂.)

Thecla erema, Hew. Ill. Diurn. Lep. p. 104, t. 44. ff. 179, 180¹.

♂ alis anticis fuscis ad marginem internum cæruleis, stigmatē permagno fere totam cellulam occupante; posticis, præter angulum analem et marginem externum fusco, cæruleis: subtus purpureo-fuscis; anticis maculis quinque ultra cellulam notatis, una tripartita subcostali ultra cellulam; posticis circulis duobus albis, una cellulari, altera infra eam, linea ultra cellulam valde fracta a costa ad marginem internum margini externo plus minusve parallela, alis ultra eam multo pallidioribus, linea ad angulum analem lunulata nigra, extra eam stramineo tinctis; macula nigra submarginali inter ramos medianos, lobulo anali quoque nigro.

Hab. GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*¹).—AMAZONS VALLEY.

The type described by Hewitson was taken by us during an expedition to the forest region of Vera Paz, north of Coban, at an elevation of about 1500 feet above the sea. The colouring of the underside of the wings recalls *T. avoca* of the Amazons region, but the different form of the brand in the cell of the primaries makes it doubtful if there is any real relationship to that species. We have a second example from the Amazons valley agreeing closely with the type; this was formerly in Mr. Bates's collection, but unfortunately it is in bad condition, and the precise locality of its capture has not been recorded. We have refigured the type from Northern Vera Paz.

80. **Thecla primno**, sp. n. (Tab. LIII. figg. 25, 26 ♂.)

♀ alis anticis fusco-nigricantibus, area interna glauco-cærulea; posticis (præter costam et marginem externum et maculas duas ad angulum analem fuscas) glauco-cæruleis: subtus purpureo-fuscis; anticis area ad angulum analem albida, maculis submarginalibus fuscis albo limbatis, linea ultra cellulam macularum septem composita ad costam angulata alba; posticis ad costæ medium et area discali maculis et lineis albis irregulariter notatis, linea margini externo subparallela extrorsum albo notata, margine externo late albicante fusco atomato, margine ipso fusco, cilia intus alba, extus fusca, macula parva testacea inter ramos medianos, lobulo anali albo, puncto nigro et introrsum testaceo limbato.

Hab. PANAMA, Chiriqui (*Trötsch*).

We are unable to identify a female sent us by Dr. Staudinger, and which we now figure, with any species with which we are acquainted: the markings of the under surface of the wings suggest an affinity with *T. erema*, or perhaps *T. avoca*; but in the absence of the male we are unable to speak with certainty as to its relationship.

13. T. PHOBE section.

81. **Thecla phobe**, sp. n. (Tab. LIII. figg. 27, 28 ♂, 29 ♀.)

♂ alis fusciscentibus; anticis ad marginem internum et posticis præter marginem externum sericeo-cæruleis, stigmatæ ad cellulæ finem: subtus griseis, linea communi discali alba, introrsum (in posticis latissime) rufo-brunnea limbata, in posticis extrorsum eodem colore dense atomata, linea communi submarginali fusca, lobulo anali rufo-brunneo, macula juxta eum albo atomata, altera ejusdem coloris.

♀ mari similis, colore cæruleo alarum paginæ superioris minus nitido.

Hab. GUATEMALA, Chisoy valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*), Coban (*mus. Staudinger*).

We have a pair of this very beautiful species, and have seen a third from Coban lent us by Dr. Staudinger. It is allied to *T. petilla* of the Amazons valley, but may be readily recognized by the much greater extension of the rufous-brown colour of the secondaries, which in our species is confluent, and not in semi-isolated spots as in *T. petilla*. *T. velina* is another allied species, in which the rufous-brown of the secondaries extends much nearer the base of the wing. The male figured is from the Chisoy valley, the female from San Gerónimo.

14. T. TERENTIA section.

82. *Thecla terentia*. (Tab. LIV. figg. 1, 2 ♂.)

Thecla terentia, Hew. Descr. Lyc. p. 2¹; Ill. Diurn. Lep. p. 129, t. 52. ff. 282, 283².

Alis obscure brunneis; anticis infra cellulam ad marginem internum obscure purpureo-cyaneis, cellula fere nigra, stigmatē ad finem ejus elliptica; posticis medialiter obscure purpureo-cyaneis: subtus fuscis, lineis tribus flavido-albis communibus, una discali in posticis angulata et nigro introrsum marginata, duabus submarginalibus ad medium marginis posticarum externi confluentibus, maculam magnam flavidam formante, lobulo anali et macula juxta eum nigris, introrsum flavo marginatis, macula nigra flavo circumcincta inter ramos medianos, margine externo fusco, linea flava introrsum limbato, cum lineis flavis venis flavis conjuncta.

Hab. PANAMA, Chiriqui (*Trötsch*).—AMAZONS VALLEY^{1 2}.

The single male specimen which we figure was sent us by Dr. Staudinger. It differs slightly from our Amazon examples in that the colouring of the wings above is of a darker purple with no admixture of blue; the yellow at the anal angle on the underside is also of a paler tint. A series of specimens would probably show that these differences are permanent, but with only one specimen before us we do not feel justified in assuming that they are so.

15. T. XAMI section.

83. *Thecla xami*.

Thecla xami, Reak. Proc. Ac. Nat. Sc. Phil. 1866, p. 339¹.

Thecla blenina, Hew. Descr. Lyc. p. 12²; Ill. Diurn. Lep. p. 127, t. 50. ff. 256, 257³.

♂ alis brunneis, costa et margine externo fuscis; anticis stigmatē ad cellulæ finem: subtus viridibus, linea communi discali nigra, introrsum rubro, extrorsum albo limbata, in posticis regulariter arcuata, ad ramos medianos profunde angulata; posticis ad angulum analem rufescentibus, dense albo atomatis, maculis quatuor ad lineam discalem nigris albo circumcinctis, macula altera inter ramos medianos et lobulo anali nigris.

♀ nobis ignota.

Hab. MEXICO^{1 2}, Jalapa (*W. Schaus*).

We have two Mexican examples of this species, but without special locality; Mr. Schaus's specimens, however, were captured near Jalapa. The only species that we are acquainted with to which it is at all closely allied is *T. rhodope*.

84. *Thecla rhodope*. (Tab. LIV. figg. 3, 4 ♂.)

Thecla rhodope, ubi?

♂ *T. xami* similis, sed posticis plaga discali ad angulum analem fulva maculisque submarginalibus nigris: subtus fascia discali magis undulata, ad ramos medianos fracta, haud profunde angulata differt.

Hab. MEXICO, Northern Sonora (*Morrison*).

We have a single male specimen taken by the late Mr. Morrison on our northern frontier and sent us with the above name attached to it. This at present is all we know of the species.

16. T. OCRISIA section.

85. *Thecla ocrisia*. (Tab. LIV. figg. 5, 6 ♂.)

Thecla ocrisia, Hew. Descr. Lyc. p. 5¹; Ill. Diurn. Lep. p. 123, t. 48. ff. 235, 236².

Thecla zora, Hew. Ill. Diurn. Lep. p. 134, t. 53. ff. 304, 305³.

Alis purpureo-nigris; anticis in medio plaga sericea, stigmatē magno ad cellulæ finem; posticis medialiter cæruleo atomatis, fascia submarginali coloris ejusdem: subtus fusco-nigricantibus, linea communi discali fusca, in posticis obsoleta vix obvia, margine externo sordide albo, maculis submarginalibus fuscis; posticis maculis ochraceis nigro introrsum limbatis ad marginem externum, lobulo anali puncto nigro, altero inter ramos medianos.

♀ alis fuscis; posticis dimidio anali cæruleo lavatis (interdum unicoloribus): subtus pallidioribus, maculis et lineis omnibus magis obviis quam in mare.

Hab. MEXICO² (*Deppe*), Jalapa (*Höge*), Cordova (*Rümeli*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Cache (*Rogers*); PANAMA, Chiriqui, Chitra (*Arcé*).—SOUTH AMERICA, Ecuador^{1,2}, Peru, Amazons valley³, and Brazil.

There appear to be two forms of female of this species, in one of which the anal portion of the secondaries is largely suffused with blue, in the other these wings are wholly brown; both occur in the same districts. The brown form was named by Hewitson *Thecla zora*, but we do not see our way to separate it from *T. ocrisia*. We have figured a male from Jalapa.

17. T. THALES section.

86. *Thecla thales*.

Hesperia thales, Fabr. Ent. Syst. iii. p. 268¹.

Papilio thales, Don. Ins. Ind. t. 40. f. 4².

Braugas thrasyllus, Geyer in Hübn. Zutr. ex. Schmett. v. p. 40, ff. 965, 966³.

Thecla thalesa, Hew. Ill. Diurn. Lep. p. 98, t. 45. f. 200⁴.

Alis purpureo-nigris, linea submarginali communi nitide cyanea; posticis quoque medialiter eodem colore sparsim squamulatis; anticis stigmatē ad cellulæ finem: subtus saturate brunneis, anticis lineolis quinque costalibus cretaceo-albis, maculis discalibus cæruleis et posticis eodem colore irregulariter maculatis, linea duplici ad angulum posticarum analem viridi-aurea, lobulo anali nigro.

♀ alis supra omnino brunneis, aliter alis maris similibus.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Champion*), Chiriqui (*Ribbe*), Lion Hill (*M. Leannan*).—SOUTH AMERICA, Amazons valley⁴ to South Brazil.

Hewitson separated a female of this species from Mr. Bates's collection as *T. thalesa*, considering it was doubtfully different from *T. thales*. With this type before us and a considerable series of specimens from widely distant points in its range, we do not see how the distinctness of *T. thalesa* can be maintained. *T. thales* is not a common species in our country, but extends as far north as Nicaragua, whence, however, we have only female examples.

18. T. ARPOXAIS section.

87. *Thecla arpoxais*, sp. n. (Tab. LV. figg. 25, 26 ♂.)

Alis purpureo-nigris; anticis infra cellulam ad angulum analem et posticis, præter costam et marginem

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externum, læte cæruleis, macula nigra ad cellulæ finem: subtus nigricanti-brunneis, linea submarginali communi argenteo-cærulea, introrsum fusco limbata, in posticis perfracta, macula infra venam costalem quoque cærulescente, linea submarginali indistincta coloris ejusdem, lobulo anali nigro introrsum viridi-aureo limbata, macula inter ramos medianos nigra, inter eos macula altera quoque nigra, viridi-aureo atomata.

Hab. PANAMA, Chitra (*Arcé*).

We have only a single male specimen of this peculiar species.

*b*⁶. A double alar stigma at the end of the cell of the primaries, a single marginal filament; costa of secondaries normal. (Species 88–100.)

1. T. RUSTAN section.

88. *Thecla rustan*.

Papilio rustan, Stoll, Suppl. Cram. Pap. Ex. p. 166, t. 38. ff. 1, 1 A¹.

Thecla macaria, Swains. Zool. Ill. iii. t. 133².

Alis brunneis; anticis, plaga discali marginem internum attingente cærulea, stigmatibus ad cellulæ finem: subtus rufescenti-fuscis, anticis ad apicem et margine externo saturatioribus, maculis quatuor ultra cellulam et duabus inter ramos medianos brunneis; posticis parte costali pallidioribus, macula mediana brunnea, linea irregulari submarginali brunnea, ad marginem internum late albido marginata, linea altera interiore perfracta, extrorsum albo marginata, angulum analem versus pallidiore, lobulo anali et macula inter ramos medianos brunneis.

♀ mari similis, sed posticis quoque ad basin cæruleo suffusis.

Hab. BRITISH HONDURAS, Corosal (*Roe*); PANAMA, Chiriqui, Calobre (*Arcé*).—SOUTH AMERICA, Amazons valley to South-east Brazil, Pernambuco².

A species of very wide range, but nowhere common. Central-American examples have the blue of the upper surface of the primaries of a rather greener shade than prevails in southern specimens, but this difference is very slight.

2. T. KEILA section.

89. *Thecla keila*. (Tab. LIV. figg. 7, 8 ♂, 9 ♀.)

Thecla keila, Hew. Ill. Diurn. Lep. p. 121, t. 52. ff. 280, 281¹.

Thecla parasia, Hew. Ill. Diurn. Lep. p. 170, t. 67. ff. 480, 481².

Alis læte nitide cyaneis; anticis costa et bitriente apicali nigris, stigmatibus duplici permagno ad cellulæ finem; posticis ciliis nigris, area abdominali fusca, margine interno albo, lobulo anali puncto rubro: subtus cinereis, linea communi discali nigra, extrorsum albo late limbata, in posticis fracta, marginem internum versus fulvo interdum marginata, linea submarginali communi fusca, albo utrinque obsolete atomata, lobulo anali nigro, introrsum fulvo atomato, juxta eum macula nigricante albo atomata, macula nigra introrsum fulvo cincta inter ramos medianos.

♀ alis fuscis; anticis dimidio basali et posticis medialiter cæruleo lavatis: subtus mari similis.

Hab. MEXICO, Cordova (*Rümel*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*¹), San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*²); COSTA RICA, Cache (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*).—VENEZUELA.

In the distribution of its colours this species resembles *T. orcynia*, but it may at once

be distinguished by the large cellular brand of the male. On the underside the white edgings to the inner common band are very broad towards the costa in both wings, the outer band too has its inner white border much expanded towards the anal angle. This character serves to distinguish the female from that sex of *T. orcynia*, which it otherwise much resembles. The specimen of *T. keila* from which Hewitson took his description was captured by us in the valley of the Polochic, from which district we have since received several female examples and other males from San Gerónimo; we have also a male from Southern Mexico in which the blue of the upper surface is rather dark and the wings a trifle less pointed. We have likewise a male from Venezuela agreeing with the type, and we have no doubt that the species described by Hewitson from Nicaragua as *Thecla parasia* belongs to this species. Hewitson's figures of this insect are very unsatisfactory, the peculiarities of the cellular brand being very inadequately rendered. Our figures represent a male from San Gerónimo and a female from the valley of the Polochic.

90. **Thecla orios**, sp. n. (Tab. LIV. figg. 10, 11 ♂.)

♂ alis supra fusco-nigris; anticis ad marginem internum cyaneis, stigmatē duplici ad cellulæ finem; posticis, præter costam et marginem externum, læte cyaneis: subtus brunneo-fuscis, linea communi discali fusco-nigra extrorsum albo marginata, in anticis lunulata, in posticis fracta et ad marginem internum angulata, lobulo anali nigro, macula rubra juxta eam, macula magna inter ramos medianos introrsum rubro cincta marginem fere attingente, lunulis submarginalibus fuscis, albido utrinque limbatis, margine ipso fusco, introrsum albido limbato.

Hab. GUATEMALA, Panima (*Champion*).

We have only a single specimen of this species, and it unfortunately is somewhat stained. There is nothing that we are acquainted with that resembles it at all closely.

91. **Thecla tephreus**.

Bithys tephreus, Hübn. Verz. bek. Schmett. p. 75¹ (descr. nulla); Geyer in Hübn. Zutr. ex. Schmett. v. p. 39, ff. 959, 960².

Thecla tephreus, Hew. Ill. Diurn. Lep. p. 106³ (♂).

Thecla faventia, Hew. loc. cit. t. 43. ff. 172, 173⁴.

Alis nitide cyaneis; anticis costa, apice et margine externo nigricantibus, stigmatē duplici permagno ad cellulæ finem; posticis costa late et margine externo anguste nigris: subtus schistaceis, linea communi ultra cellulas introrsum fusca extrorsum alba; posticis linea altera submarginali lunulata fusca, utrinque albido limbata, lobulo anali nigro, macula inter ramos medianos rubra puncto nigro.

♀ mari similis.

Hab. MEXICO, Valladolid in Yucatan (*G. F. Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic and central valleys (*F. D. G. & O. S.*), Tucuru, Chacoj, Cahabon, Cubilguitz, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Calobre (*Arcé*).—VENEZUELA³; AMAZONS VALLEY.

One of the commonest species of the South-American Lycænidæ, being found over a

large area, and specially abundant in Central America. It is a low-country species, reaching in the mountains to an altitude of about 5000 feet above the sea-level.

3. T. PRAXIS section.

92. *Thecla praxis*, sp. n. (Tab. LIV. figg. 12, 13 ♂.)

T. ortalus similis, sed anticis ad apicem multo latius nigricanti-fuscis: subtus lobulo anali nigro, colore rubro juxta eum vix ullo.

Hab. PANAMA, Veraguas (*Arcé*), Taboga I. (*Walker, Mathew*), Panama (*Ribbe*).—COLOMBIA.

We have three male specimens of this species, which seems sufficiently distinct from *T. ortalus* on the one hand and *T. tiassa* on the other to justify its separation. The apex of the primaries is much more broadly brown and the anal angle of the secondaries beneath is scarcely marked with rufous. We have likewise an example from Colombia obtained by Mr. Wheeler, which, being in good condition, we have figured.

93. *Thecla ortalus*, sp. n. (Tab. LIV. figg. 14, 15 ♂.)

♂ alis supra chalybeo-cæruleis; anticis apice et margine externo fusco-nigricantibus, stigmatibus duplici ad cellulæ finem; posticis costa et margine externo fusco-nigricantibus, area abdominali coloris ejusdem, ciliis angulum analem versus albis, lobulo anali macula rubra: subtus brunnescentibus, linea discali communi introrsum nigricante extrorsum alba; posticis linea altera exteriori utrinque albo limbata, margine ipso nigricante, introrsum albo anguste marginata, lobulo anali nigro, macula rubra juxta eam, macula altera rubra inter ramos medianos puncto nigro, inter eos plaga fusca albo atomata.

♀ alis supra viridescenti-fuscis, extrorsum fusco marginatis: subtus mari similis, sed alis pallidioribus.

Hab. MEXICO, Cordova (*Rümeli*).

This species is closely allied to *T. tiassa* of the Amazons region. The male differs above in having less purple in the blue of the wings, and the bands of the secondaries beneath are rather more divergent towards the costa. The female has a greenish cast over the base of the wings instead of being of a uniform brown, as in the other species. At present we have only seen a pair of *T. ortalus*, both from Cordova, and we figure the male.

94. *Thecla stagira*.

Thecla stagira, Hew. Ill. Diurn. Lep. p. 113, t. 39. ff. 120, 121¹.

Alis supra chalybeo-cæruleis, marginibus externis nigricantibus; anticis stigmatibus duplici ad cellulæ finem; posticis lobulo anali puncto rubro: subtus purpurescenti-fuscis, linea communi discali fusca extrorsum albido limbata, anticis ultra eam pallidioribus plaga mediana viridescente, costa ad basin rubra; posticis linea submarginali nigricante, introrsum albo atomata, lobulo anali nigro, macula parva rubra juxta eum, macula altera nigra introrsum rubro cincta inter ramos medianos, margine externo ad angulum analem nigro introrsum albo limbato, ciliis albis dimidio apicali fusciscentibus.

Hab. PANAMA, Volcan de Chiriqui (*Arcé*), Bugaba (*Champion*).—COLOMBIA; AMAZONS¹.

Our examples from Chiriqui, being fresh, differ from a type from Mr. Bates's collection,

and are of a darker metallic blue on the upper surface and beneath of rather a more purple tint ; but as we find some variation in both respects in our northern specimens, we are inclined to attribute the difference to the age of the examples and the action of light upon them. Hewitson was evidently confused as to this species, as the insect figured on his plate (xliii. f. 167) as a variety of *T. stagira* must clearly represent another species. Moreover, an example in Bates's collection marked "*T. stagira*" by Hewitson cannot possibly belong here. We have therefore considered solely his first figure, with which a specimen in Mr. Bates's collection from the Tapajos river fairly coincides.

95. **Thecla cambes.** (Tab. LIV. figg. 16, 17 ♂, 18 ♀.)

Alis obscure sericeo-azureis ; anticis dimidio apicali fuscis, stigmatè duplici ad cellulæ finem ; posticis dimidio postico cæruleis, apice et margine externo fuscis : subtus fuscis, lineis duabus communibus albis in posticis valde sinuosis ; dimidio posticarum distali albo dense atomato, lineolis duabus ad cellulæ finem albis, maculis tribus coccineis nigro extrorsum limbatis, duabus ad angulum analem conjunctis, tertia inter ramos medianos a margine aliquanto distante.

♀ alis fuscis ; anticis ad basin, posticis (præter marginem) cæruleis, maculis tribus submarginalibus ad angulum analem : subtus alis maris similibus, lineis posticarum albis, fractis et diffusis.

Hab. MEXICO, Cordova (*Rümel*) ; GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

Of this species we have but two males from Cordova and a female from Guatemala, which we place with them with some doubt, as the white lines on the under surface are somewhat differently situated. If, however, this female does not belong to this species, it is certainly that of a very close ally. We now figure it and one of the Cordova males.

96. **Thecla volupia.** (Tab. LIV. figg. 19, 20 ♂.)

Thecla volupia, Hew. Ill. Diurn. Lep. p. 177, t. 69. ff. 517, 518¹.

Alis cyaneis ; anticis margine externo nigro, stigmatè duplici ad cellulæ finem ; posticis margine externo anguste nigro, ciliis albis : subtus schistaceis viridi vix lavatis, linea discali communi introrsum fusca extrorsum alba ad marginem posticarum internum fracta ; posticis margine externo fusco, introrsum albo anguste marginato, linea submarginali ad angulum analem nigra, introrsum albo marginata, lobulo anali nigro, macula inter ramos medianos nigra introrsum late rufo marginata.

♀ nobis ignota.

Hab. NICARAGUA, Chontales (*Belt*¹).

T. volupia is allied to *T. leucophæus* of the southern continent, being undistinguishable on the upperside ; but, beneath, the wings (especially the secondaries) are more uniformly grey, and the anal lobe is black without any rufous border. The only specimens we have seen of this species are those obtained by Belt, two of which, both males, are now in our possession, one of which is figured.

4. *T. EPIDIUS* section.97. *Thecla epidius*, sp. n. (Tab. LIV. figg. 21, 22 ♂.)

Alis læte cyaneis; anticis costa ad basin, apice et margine externo nigris, stigmatē duplici permagno ad cellulæ finem; posticis margine externo nigro, area abdominali fusca: subtus ochraceo-fuscis, linea communi discali internum nigricante, extrorsum albo, in posticis fracta ad marginem internum angulata, lobulo anali nigro, macula inter ramos medianos rubra puncto nigro, inter eos macula fusca albo atomata.

♀ mari similis, sed alarum colore cæruleo dilutiore.

Hab. PANAMA, Chiriqui (*Ribbe*).—COLOMBIA.

This species is allied to *T. doryasa*, but it may readily be recognized by the red colour of the secondaries beneath being confined to the spot between the median branches instead of spread over the greater portion of the anal angle. Herr Ribbe obtained a single male example of this species at Chiriqui, and we have a pair from the San Juan river in Western Colombia; it is also in Mr. Wheeler's collection from the interior of the same country. The latter we have figured.

5. *T. LAUSUS* section.98. *Thecla lausus*. (Tab. LIV. fig. 23 ♀.)

Papilio lausus, Cram. Pap. Ex. t. 233. E¹.

Thecla lausus, Hew. Ill. Diurn. Lep. p. 97².

Alis fuscis; anticis ad marginem internum et posticis præter marginem externum glauco-cærulescentibus; anticis stigmatē fusco (dimidio inferiore nigro) ad cellulæ finem: subtus fuscis; anticis fasciis tribus albis transvittatis, una abbreviata per cellulam, una ultra eam, tertia submarginali ad angulum analem dilatata; posticis macula irregulari magna costali ad angulum apicalem, linea tri-ramosa supra venam subcostalem macula apicali conjuncta alba, lineis duabus margini externo subparallelis, interiore per cellulæ finem arcuata inter ramos medianos fracta, exteriorē lunulata, ad angulum analem fusco limbata, macula parva inter ramos medianos cervina puncto nigro, maculis duabus nigris ad angulum analem.

♀ mari similis, sed alis intus multo canescentioribus.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Trötsch*).—AMAZONS VALLEY²; GUIANA¹.

We have before us a male from Chiriqui, lent us by Dr. Staudinger, and a female from Belt's Nicaragua collection, which agree with others from the Amazons valley and with Cramer's figure of *T. lausus*. Our figure represents the underside of the Nicaragua specimen.

6. *T. SYNCELLUS* section.99. *Thecla syncellus*.

Papilio syncellus, Cram. Pap. Ex. t. 334. A, B¹.

Thecla syncellus, Hew. Ill. Diurn. Lep. pp. 109, 183, t. 46. ff. 207, 208 (♂)², t. 72. ff. 553, 554³.

Alis nitide cyaneis; anticis apice et margine externo anguste nigris, stigmatē duplici ad cellulæ finem; posticis ciliis nigris, lobulo anali quoque nigro, albido atomato: subtus nitide fuscis; anticis macula parva

ad basin costæ coccinea, linea communi ultra cellulas in posticis ad marginem internum angulata et extrorsum albo limbata, linea altera submarginali ad angulum analem introrsum viridi-argenteo marginata, maculis tribus ad angulum analem nigris, albido circumcinctis, media viridi-argentea frequenter atomata.

♀ alis fusco-nigris, intus obscure cyaneis: subtus alis maris similibus, sed pallidioribus, lineis et maculis omnibus magis distinctis.

Hab. MEXICO, Cordova (*Rümeli*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Cahabon, La Tinta, Panima, San Gerónimo, El Reposo (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Bugaba, David (*Champion*), Calobre, Veraguas (*Arcé*).—SOUTH AMERICA, Colombia and Ecuador to Amazons valley² and Guiana¹.

T. syncellus is one of the most abundant species of this family throughout Tropical America from Mexico through the Amazon valley to Guiana, and we have a large series of both sexes. Individuals agree very closely with one another, except that the outer black border of the primaries in the males of Mexican and Guatemalan examples is narrower than in those from further south; but as there seems to be considerable variation in this respect, we are unwilling to lay too much stress upon it. *T. syncellus*, so far as we know, has no close allies.

7. *T. ochus* section.

100. *Thecla ochus*, sp. n. (Tab. LIV. figg. 24, 25 ♂, 26, 27 ♀.)

Alis nitidissime cyaneis, extrorsum anguste nigro marginatis; anticis stigmatibus duplici ad cellulae finem et infra eam plaga magna discali nigerrima; posticis lobulo anali nigro, maculis duabus parvis albis instructo: subtus nigricanti-fuscis; anticis maculis duabus parvis sub medio costæ, altera triangulari venis quinque partita apicem propiore et atomis variis ad medium marginis externi albis, macula parva ad basin costæ coccinea; posticis fascia pallida valde indistincta ab angulo apicali ad medium marginis interni transeunte, lineis transversis nigris divisa, iis ad angulum analem indistincte productis, maculis duabus submarginalibus coccineis, albo atomatis, una utrinque ramo mediano primo posita maculisque aliis ad angulum analem pallide stramineis.

♀ alis fusco-nigricantibus, area interna nitide cæruleis, maculis quibusdam albis ad angulum analem: subtus alis maris similibus, sed maculis et lineis omnibus multo magis distinctis.

Hab. GUATEMALA, Vera Paz (*Hague*), Dueñas (*Champion*).

We have based our description of this species on two specimens, male and female, in our collection, from Guatemala, the former sent us by Mr. Hague from Vera Paz, the latter captured by Mr. Champion near Dueñas, both of which we figure. Dr. Staudinger now sends us a male from the Volcan de Chiriqui which differs slightly from our type in that the blue is a little less brilliant and the black spot on the primaries is considerably more extensive. It is quite possible that this southern form should bear a separate name, but we should like to see more examples before describing it.

T. ochus, judging from the pattern of the wings beneath, is obviously allied to *T. paphlagon* of Felder, of which we have three female examples in our collection. The type of this species is said to be a male; but, judging from what we find in *T. ochus*, we think it possible that an error has been made as to the sex of this

specimen, and that the male of *T. paphlagon* remains to be discovered. Both these species have a general resemblance to the well-known *T. pelion* of Cramer, but the structure of the brand of the primaries of the males differs essentially, so that the apparent similarity may not indicate any close relationship.

*c*⁶. No alar stigma, but a pencil of hairs on the subcostal nervure of the secondaries above; costa of secondaries normal; a single marginal filament. (Species 101, 102.)

101. **Thecla pion**, sp. n. (Tab. LIV. figg. 28, 28 *a*, 29 ♂, 30 ♀.)

Alis obscure fuscis, anticis infra cellulam ad marginem internum et posticis (præter apicem) obscure cyaneis; posticis vena mediana penicillata: subtus fuscis, linea communi discali fusca, in posticis fracta et extrorsum albo marginata, posticis quoque linea submarginali indistincta fusca, lobulo anali nigro, introrsum albo et rubro anguste marginato, macula juxta eum nigra cæruleo atomata, macula quoque inter ramos medianos rubra puncto nigro instructa.

♀ mari similis, sed alarum colore cæruleo multo magis pallido, vena mediana posticarum haud penicillata: subtus omnino pallidioribus, lineis magis distinctis.

Hab. GUATEMALA, Polochic valley, Dueñas (*F. D. G. & O. S.*), Calderas (*Champion*); PANAMA, Chiriqui (*Trötsch*).

A species readily recognized in the male by the small tuft of hair on the median nervure of the secondaries, which is placed on the costal side of the nervure instead of the median, as in *T. oppia*.

We have a good series of specimens from Guatemala, and have figured a male from Dueñas and a female from Calderas. The only Panama example before us is a female lent us by Dr. Staudinger.

102. **Thecla oppia**, sp. n. (Tab. LV. figg. 1, 2 ♂.)

Alis purpureis; anticis costa et margine externo nigris; posticis costa et margine nigris, area abdominali quoque nigra, lobulo anali puncto rubro, stigmatum supra venam subcostalem ad cellulæ finem introrsum penicillato: subtus fusco-brunneis, linea communi discali fusco, extrorsum albo, in posticis fracta, altera indistincta submarginali albida; anticis plaga infra cellulam argenteo micante; posticis angulo anali rufo, lobulo suo nigro, macula juxta eam nigro atomata, tertia inter ramos medianos quoque nigra introrsum late rufo limbata, margine externo nigro introrsum albo anguste marginato.

Hab. MEXICO, Cordova (*Rümelin*).

We have four male specimens of this species, all from the same locality—the neighbourhood of Cordova in Mexico; but the female yet remains to be discovered. The species is very peculiar, having a brand on the secondaries supplemented with a tuft of hair.

T. panchæa and its Guatemalan ally *T. pion* have also each a tuft on the secondaries, but this proceeds from the upper instead of the underside of the subcostal nervure; and there is no stigma.

*d*⁶. The costa of the secondaries much arched, covering a stigmatic patch on the primaries beneath below the median nervure. (Species 103–108.)

*a*⁷. An alar stigma at the end of the cell of the primaries; secondaries with marginal filament. (Species 103, 104.)

103. **Thecla ambrax.** (Tab. LV. figg. 5, 6 ♂.)

Thecla ambrax, Westw. & Hew. Gen. Diurn. Lep. p. 485, t. 75. f. 7¹; Hew. Ill. Diurn. Lep. p. 101, t. 41. f. 150².

Alis nitide cyaneis; anticis costa apice et margine externo nigris, stigmatē ad cellulæ finem; posticis plaga magna costali sericea, margine externo anguste nigro: subtus schistaceo-fuscis; anticis linea submarginali introrsum fusca, extrorsum albo limbata, plaga magna discali granulata; posticis linea irregulari ultra cellulam transversa, introrsum fusca, extrorsum albo marginata, altera submarginali fusca utrinque albo late limbata, lobulo anali nigro introrsum rubro, macula inter ramos medianos rubra puncto nigro.

♀ mari similis, sed alis cærulescentioribus.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA (*Ribbe*).—AMAZONS VALLEY; S.E. BRAZIL^{1 2}.

We have a male specimen of this species from Nicaragua and a female from Panama, lent us by Dr. Staudinger; these agree with Brazilian examples and others from the valley of the Amazons.

104. **Thecla syedra.** (Tab. LV. figg. 7, 8 ♂.)

Thecla syedra, Hew. Ill. Diurn. Lep. p. 108, t. 39. ff. 128, 129, t. 41. f. 145¹.

Alis viridi-cyaneis; anticis costa late, dimidio apicali et margine externo toto, nigris; posticis parte apicali et margine externo anguste quoque nigris: subtus schistaceo-fuscis, anticis fascia arcuata ultra cellulam fusca albo late marginata, plaga mediana nitide stramineo granulata; posticis linea sinuata ultra cellulam, introrsum fusca extrorsum alba, altera submarginali indistincta fusca utrinque irregulariter limbata, lobulo anali nigro, macula magna rubida inter ramos medianos puncto nigro.

♀ mari similis, sed alis supra cærulescentioribus: subtus dilutioribus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); COSTA RICA (*mus. Staudinger*).—AMAZONS VALLEY¹.

Hewitson described this species from Amazon specimens, with which three examples obtained by us in the Polochic valley do not materially differ. We have seen no specimens from other parts of Central America, except a male from Costa Rica lent us by Dr. Staudinger. *T. syedra* belongs to a group of which *T. sichæus* of Cramer is the best-known example; from this it may at once be recognized by the discal patch on the primaries beneath being straw-coloured instead of blackish brown.

*b*⁷. No alar stigma; secondaries with marginal filament. (Species 105–107.)

1. T. MYRTUSA section.

105. **Thecla myrtusa.**

Thecla myrtusa, Hew. Ill. Diurn. Lep. p. 95, t. 38. f. 111¹.

♂ alis cyaneis; anticis costa late et dimidio apicali nigricantibus; posticis ciliis nigris: subtus viridescenti-
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fuscis, anticis fascia submarginali indistincta maculosa, introrsum nigricante extrorsum albicante; posticis macula alba introrsum nigro marginata sub medio costæ, fasciis duabus submarginalibus, interiore multo fracta, introrsum nigro, extrorsum albo limbata, exteriori ad angulum apicalem maculosa ad angulum analem lunulosa, extrorsum nigro introrsum albo marginata, macula submarginali inter ramos medianos rufa nigro subpupillata, juxta eam macula altera fusca albo dense irrorata, lobulo anali nigro.

Hab. PANAMA, San Miguel in the Pearl Islands (*Champion*).—AMAZONS VALLEY¹ and GUIANA.

We have a single male example of this species, captured by Mr. Champion on San Miguel, one of the Pearl Islands. This has the wings of a somewhat richer blue than we find in Amazons examples, but the difference is not considerable.

2. T. ERICETA section.

106. *Thecla ericeta*. (Tab. LV. figg. 3, 4 ♂.)

Thecla ericeta, Hew. Ill. Diurn. Lep. p. 104, t. 44. ff. 177, 178¹.

Thecla munatia, Hew. Ill. Diurn. Lep. p. 211, t. 84. ff. 716, 717².

♂ alis nitide sericeo-cyaneis; anticis costa et dimidio apicali nigris; posticis costa polita viridescente, margine externo anguste nigro, area abdominali et ciliis fuscis: subtus fuscis, linea communi discali alba ad marginem posticarum internum nigro introrsum marginata, linea altera submarginali fusca (ad angulum analem nigra) utrinque albo limbata, lobulo anali nigro puncto introrsum rubro, macula juxta eum albo atomata, macula tertia nigra introrsum rubro cincta inter ramos medianos, margine externo nigro introrsum albo limbato.

♀ nobis ignota.

Hab. GUATEMALA², low forests of Vera Paz (*F. D. G. & O. S.*¹); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*).

We have but two specimens of this beautiful species, and a third has been lent us by Dr. Staudinger. The Guatemala example was taken by us in the low forest beyond Coban in Vera Paz, and formed the type of Hewitson's description and figure: the latter very inadequately represents this species, the colour of the underside being represented as of a chocolate instead of a grey tint, and the white lines are broken up in places where they ought to be continuous. Dr. Staudinger has also lent us his type of *Thecla munatia*, which we cannot distinguish from that of *T. ericeta*.

3. T. LATAGUS section.

107. *Thecla latagus*, sp. n. (Tab. LV. figg. 9, 10 ♂.)

Alis cyaneis; anticis costa apice et margine externo nigris; posticis margine externo et ciliis nigris, plaga magna super venam subcostalem nigerrima, area abdominali fusca: subtus fuscis, lineis duabus discalibus communibus fuscis, interiore extrorsum, exteriori introrsum albido limbatis; posticis lobulo anali nigro, introrsum vix rubro atomato, macula nigra inter ramos medianos introrsum rubro marginata.

Hab. PANAMA, Chiriqui (*Ribbe*).

Dr. Staudinger has lent us a single male example of this very distinct species, which

may readily be recognized by the black patch on the upper surface of the secondaries. The inner margin of the primaries is considerably dilated, so as to cover this patch when the wings are normally extended.

*c*⁷. No marginal filament. (Species 108.)

4. T. ORASUS section.

108. **Thecla orasus**, sp. n. (Tab. LV. figg. 11, 12 ♂.)

♂ alis omnino sericeo-cyaneis, posticis paullo dilutioribus; anticarum costa et apice anguste nigricantibus; posticis stigmatē supra venam subcostalem ad ramum suum: subtus cinereis, fascia communi discali in posticis valde irregulari fusca introrsum albo limbata, fascia altera submarginali indistincta quoque fusca, lobulo anali et puncto inter ramos medianos nigris; anticis infra cellulam ad angulum analem omnino sericeo-viridi-cæruleis.

Hab. GUATEMALA, Purula (*Champion*).

We have a single male specimen of this beautiful species, taken by Mr. Champion near Purula in Guatemala.

*e*⁶. A single stigma at the end of the cell of the primaries, but no marginal filament to the secondaries; costa of secondaries normal. (Species 109–111.)

109. **Thecla gadira**. (Tab. LV. figg. 13, 14 ♂.)

Thecla gadira, Hew. Ill. Diurn. Lep. p. 113, t. 44. ff. 181, 182¹.

Alis lætissime cyaneis, costa et margine externo anguste nigris, stigmatē fusco ad cellulæ anticarum finem: subtus griseis, linea submarginali communi albida; posticis linea altera discali alba fusco introrsum vix limbata, lobulo anali et macula inter ramos medianos nigris, introrsum rubro limbatis.

♀ alis fuscis; anticis cellula et infra eam ad angulum analem cæruleis; posticis cæruleis, angulo apicali et margine externo fuscis: subtus alis maris similibus, sed pallidioribus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*¹), San Gerónimo (*F. D. G. & O. S.*, *Champion*).

This species was described by Hewitson from a female example obtained by us in the Polochic valley. We have since procured males from the same locality. As Hewitson conjectured, there is no trace of any tail-like appendage to the secondaries.

110. **Thecla norax**, sp. n. (Tab. LV. figg. 17, 18 ♂.)

T. gadiræ similis, sed alis pallidiorē cyaneis, marginibus externis latius nigris, stigmatē anticarum magis rotundo: subtus pallidioribus; posticis lineis lunulatis albidis frequenter transfasciatis.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

We have two male specimens of this species, which is clearly distinct from *T. gadira*. and, like it, there is no trace of a tail to the secondaries.

111. **Thecla minthe**, sp. n. (Tab. LV. figg. 15, 16 ♂.)

T. gadiræ quoque similis, quoad picturam paginæ alarum superioris; anticis subtus dimidio interno sericeo-cyaneo facile distinguenda.

Hab. MEXICO, Milpas (*Forrer*).

Mr. Forrer obtained a single male specimen of this species in the Sierra Madre in Durango, at an elevation of nearly 6000 feet. In general appearance *T. minthe* is closely allied to *T. gadira* and *T. norax*, but may readily be distinguished by the blue patch on the under surface of the primaries beneath.

*b*⁵. Wings without an alar stigma. (Species 112–209.)

*f*⁶. Wings green beneath; secondaries with outer margin much rounded and without marginal filament. (Species 112–115.)

112. **Thecla quaderna**.

Thecla quaderna, Hew. Descr. Lyc. p. 35¹; Ill. Diurn. Lep. p. 209, t. 83. ff. 703, 704².

Alis nigris; anticis infra cellulam ad marginem internum, posticis interne et lineola submarginali ad angulum analem læte cæruleis; costa anticarum ipsa et ciliis, cervinis: subtus viridibus, linea communi discali ruberrima in anticis fere continua in posticis omnino fracta, lunulas varias formante, maculis aliis submarginalibus sagittiformibus quoque ruberrimis, squamis quibusdam nigris notatis.

Hab. MEXICO^{1 2}, Las Vigas (*W. Schaus*); GUATEMALA, Quiche Mountains (*Champion*).

We have a single male specimen of this species, taken by Mr. Champion in the Quiche Mountains. The description was based upon a Mexican example which we have examined.

113. **Thecla aura**, sp. n. (Tab. LV. figg. 21, 22 ♂.)

T. quadernæ similis, sed anticis omnino nigris; posticis tantum medialiter cyaneis, lineola submarginali cærulea nulla: subtus magis glaucis, linea discali anticarum margini externo propiore, maculis submarginalibus rufis nullis.

Hab. COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*Trötsch*).

This species is clearly distinct from *T. quaderna*, though closely allied to it. We have as yet only seen two male examples, one from each of the localities cited above. We figure the one from Costa Rica.

114. **Thecla attalion**, sp. n. (Tab. LV. figg. 19, 20 ♂.)

T. quadernæ quoque similis, sed alis supra omnino brunneis; posticis lineola submarginali ad angulum analem tantum cærulea.

Hab. MEXICO, Orizaba (*Sallé*).

The brown upper surface of the wings of this species renders it easily distinguishable

from its allies; the primaries, too, are much more pointed. We have but a single specimen before us, which we believe to be a male; this we obtained from M. Sallé.

115. **Thecla ares**, sp. n. (Tab. LV. figg. 23, 24.)

Alis brunneis purpureo vix tinctis: subtus viridibus, linea discali communi albida vix obvia, lineola quoque ad cellulas fines, fronte et oculorum ambitu viridibus.

Hab. GUATEMALA (*mus. Staudinger*).—AMAZONS VALLEY.

Dr. Staudinger has sent us a single mutilated specimen of a *Thecla* which agrees with a hitherto unnamed example in our collection taken at Ega by Mr. Bates. Both appear to be males. We figure the latter.

The species to which *T. ares* is most nearly allied is *T. biblia* of Hewitson.

*g*⁶. Outer margin of secondaries normal, with a marginal filament. (Species 116–208.)

1. T. OROBIA section.

116. **Thecla orobia**. (Tab. LV. figg. 29, 30 ♂.)

Thecla orobia, Hew. Ill. Diurn. Lep. p. 103, t. 40. ff. 134, 135¹.

Alis viridescenti-cæruleis, marginibus nigricantibus: subtus saturate brunneis; anticis, costa præcipue ad apicem albido atomata, fascia obliqua ultra cellulam quoque albida, infra eam maculis quatuor cærulescentibus, area mediana certa luce cærulescente; posticis maculis quibusdam nigris cæruleo pupillatis, una inter ramos costalem et subcostalem, reliquis ultra cellulam dispersis angulum analem versus aureo atomatis, angulo ipso nigro.

♀ alis supra omnino brunneis: subtus alis maris similibus.

Hab. PANAMA, Veraguas (*Arcé*).—VENEZUELA; AMAZONS¹.

Our single specimen from the State of Panama, which we figure, has less green in the middle of the primaries beneath, but does not otherwise differ from Amazons examples. Our only female is from the river Tapajos, and formed part of Mr. Bates's collection.

2. T. EMPUSA section.

117. **Thecla empusa**.

Thecla empusa, Hew. Ill. Diurn. Lep. p. 106, t. 42. ff. 158, 159¹.

Thecla tympania, Hew. Ill. Diurn. Lep. p. 128, t. 51. ff. 276, 277².

Thecla bethulia, Hew. Ill. Diurn. Lep. p. 128, t. 51. ff. 278, 279³.

Tmolus halciones, Butl. & Druce, Cist. Ent. i. p. 108⁴; Butl. Lep. Ex. p. 161, t. 57. f. 9⁵.

Alis anticis nigricantibus, cellula partim et area ad marginem internum cyaneis; posticis cyaneis, apice et margine externo nigris, ciliis albidis, area abdominali fusco-nigra: subtus griseis, linea communi discali introrsum fusca extrorsum alba ad marginem posticarum internum angulata, lobulo anali nigro introrsum flavido, macula nigra inter ramos medianos introrsum rufo deinde flavido marginata, inter eos macula fusca albo atomata.

♀ alis fuscis ad basin viridi-cæruleo tinctis, aliter alis maris similibus.

Hab. GUATEMALA, Panima (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{4 5}); PANAMA, Chiriqui (*Trötsch*).—AMAZONS VALLEY^{1 2 3}.

The first description of this species was based upon Amazon specimens by Hewitson, who likewise described it under the names of *Thecla tympania* and *Thecla bethulia*. Specimens of it were subsequently sent by Van Patten from Costa Rica, and these were redescribed by Messrs. Butler and Druce as *Tmolus halciones*; but with typical examples of all these supposed species before us, we do not see any valid grounds for their separation. We now trace *T. empusa* into Guatemala and the State of Panama, but it is nowhere a common insect.

118. *Thecla mecrida*.

Thecla mecrida, Hew. Ill. Diurn. Lep. p. 94, t. 38. ff. 108, 109¹.

Alis fuscis; anticis ad marginem internum et posticis area interna obscure cæruleis: subtus schistaceis; anticis lineis duabus transversis exteriore submarginali introrsum albo limbata, interiore ultra cellulam extrorsum albo limbata; posticis lineis tribus transfasciatis, prima abbreviata per cellulam et cum tertia introrsum albo limbata, secunda angulata (ad ramum medianum primum interrupta) extrorsum albo limbata, macula submarginali inter ramos medianos fulva nigro subpupillata, lobulo anali medialiter nigro, juxta eum macula altera nigro albo atomata.

Hab. PANAMA (*Ribbe*).—AMAZONS VALLEY¹.

We have a single male specimen of this species before us, lent us by Dr. Staudinger; it agrees with our Amazon examples, whence the type was derived.

3. T. TANAIIS section.

119. *Thecla tanais*, sp. n. (Tab. LV. figg. 27, 28.)

Alis supra fuscis; anticis ad marginem internum et posticis fere omnino nitide cæruleis, lobulo anali medialiter rubro: subtus griseo-fuscis, linea discali communi fusca, extrorsum albo limbata, in posticis ad marginem internum angulata, lobulo anali nigro, macula rubra juxta eum, maculis duabus magnis attingentibus extrorsum et introrsum nigro marginatis albis, intus nigro atomatis.

♀ mari similis, colore cæruleo paginæ alarum superioris obscuriore.

Hab. PANAMA, Chiriqui, Calobre (*Arcé*), Chiriqui (*Trötsch*).

We have several specimens of this pretty species, including one from Dr. Staudinger. In its range it seems restricted to the State of Panama. The specimen figured came from Chiriqui.

4. T. CYDRARA section.

120. *Thecla cydrara*.

Thecla cydrara, Hew. Descr. Lyc. p. 17¹; Ill. Diurn. Lep. p. 133, t. 53. ff. 295, 296².

Alis fusco-nigris; anticis area ad marginem internum viridi-cyanea; posticis medialiter ejusdem coloris, margine externo anguste nigricante: subtus albidis, linea discali communi fusco-brunnea, extrorsum albo limbata, in posticis omnino fracta, in anticis plaga magna triangulari costali fusca attingente; posticis ad basin fusco maculosis, linea communi submarginali lunulata fusca ad marginem internum nigra, lobulo anali nigro, macula juxta eum quoque nigro albo atomata.

Hab. GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*).—SOUTH AMERICA, Amazons valley^{1 2} and Guiana.

We have a single male specimen of this species taken by ourselves in Guatemala in the forest country north of Coban; but it appears not to have been noticed elsewhere within our limits. In South America it is an abundant species, especially in the Amazons valley. The triangular spot on the costa of the primaries beneath renders this insect easily distinguished.

121. *Thecla echion*.

Papilio echion, Linn. Syst. Nat. i. p. 788¹; Esp. Schmett. i. p. 265, t. 20. f. 1².

Thecla echion, Hew. Ill. Diurn. Lep. p. 155, t. 61. ff. 410, 411³.

Papilio crolus, Cram. Pap. Ex. t. 333. G, H⁴.

Alis nigricantibus; anticis area ad marginem internum et posticis fere omnino saturate cyaneis, stigmatibus spurio ad cellulæ finem: subtus cinereis, fascia communi discali nigra, extrorsum albo introrsum rubro limbata, in posticis in maculas fracta, maculis quoque tribus basin propriis nigris, interne rufis extrorsum albo cinctis, linea altera submarginali nigra in posticis lunulata, lobulo anali puncto nigro, introrsum macula aurantia notato, macula altera juxta eum alba dense atomata, puncto nigro inter ramos medianos introrsum aurantio cincta.

♀ alis fuscis, subtus alis maris similibus.

Hab. MEXICO, Milpas in Durango (*Forrer*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley, Choctum (*F. D. G. & O. S.*), Panzos, Telemán San Gerónimo (*Champion*); COSTA RICA, Cache (*Rogers*); PANAMA, Chiriqui and Calobre (*Arcé*), Taboga Island (*Champion*).—SOUTH AMERICA, Colombia to the Amazons valley³, Guiana⁴, and South Brazil³.

T. echion is not an uncommon species in Central America from Western Mexico to Panama, and it is equally common throughout the tropical portions of South America. The only difference that we notice in northern examples is that the orange spots near the anal angle of the secondaries are much more clearly defined.

We are rather doubtful if this species is rightly placed here, for the terminal portion of the cell has the scales arranged somewhat in the manner of a stigma; but the position of the subcostal branches does not seem to be affected, as is the case when a true stigma is present.

122. *Thecla crolinus*. (Tab. LV. figg. 31, 32 ♂, 33 ♀.)

Tmolus crolinus, Butl. & Druce, Cist. Ent. i. p. 107¹; Butl. Lep. Ex. p. 160, t. 57. f. 13².

T. echioni similis, sed anticis colore alarum cæruleo fere totam cellulam occupante; alis feminae quoque cyaneo distincte lavatis.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*^{1 2}); PANAMA, Chiriqui (*Trötsch*).

This species appears to be different from *T. echion*, and was described from a single male specimen in Van Patten's collection, which is now before us. We have a single

female from Guatemala taken by ourselves in the Polochic valley. We figure it and the Costa-Rica type. The Chiriqui specimen is a male lent us by Dr. Staudinger; it is small, but agrees fairly with the type.

5. T. PROBA section.

123. *Thecla proba*, sp. n. (Tab. LVI. figg. 1, 2 ♂, 3 ♀.)

Alis azureis; anticis costa et margine externo nigricanti-fuscis; posticis, costa late, margine externo anguste nigricantibus, margine interno et ciliis albis: subtus cretaceo-albis fere immaculatis; posticis lobulo anali macula minuta nigra, macula inter ramos medianos nigra, introrsum fulvo marginata, margine ad angulum analem anguste nigro.

♀ alis griseo-fuscis ad basin vix cæruleo tinctis: subtus linea communi discali obsoleta fusca.

Hab. PANAMA, Calobre (*Arcé*), Taboga Island (*Champion*).

This species appears to come nearest to *T. dindymus* of Cramer, but may readily be distinguished by the greater extension of the blue colouring into the apex of the wings on the upperside, and beneath by the almost entire absence of all markings. Guided apparently by the upper surface of the wings, Hewitson considered the male of this species to be the female of his *Thecla zigira*, a species presenting many essential points of difference.

The male figured came from Calobre, the female from Taboga Island.

6. T. ORCYNIA section.

124. *Thecla orcynia*.

Thecla orcynia, Hew. Descr. Lyc. p. 11¹; Ill. Diurn. Lep. p. 121, t. 50. ff. 262–265².

Thecla aunia, Hew. Ill. Diurn. Lep. p. 167, t. 65. ff. 464, 465³.

Alis supra nitide cæruleis; anticis costa et dimidio apicali fusco-nigricantibus; posticis angulo anali, margine externo quoque nigricantibus, lobulo anali rubro: subtus pallide fuscis, linea communi discali alba in posticis perfracta, lineola duplici ad cellulæ finem quoque alba, linea altera submarginali communi albo atomata ad angulum posticarum analem, extrorsum nigricante limbata, lobulo anali nigro, area juxta eum rubra, macula nigra, introrsum rubro cincta, inter ramos medianos.

♀ alis fuscis; anticis ad basin et posticis medialiter obscure cæruleo lavatis: subtus alis maris similibus, sed alis plerumque canescentioribus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*^{1 2}); NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Arcé*, *Trötsch*), Bugaba (*Champion*), Calobre (*Arcé*).—COLOMBIA; VENEZUELA³.

This species has been the source of considerable difficulty, as it is evidently an insect subject to variation both as regards the tint of the blue of the upper surface and the general tone of the under surface of the wings, the latter being browner in some cases and greyer in others.

Hewitson took his original description of *T. orcynia* from a specimen in our collection which we have now before us, and he subsequently described his *T. aunia* from a

Venezuelan example which we also possess. On comparing these two insects together we see no tangible ground for their separation. The insect figured by Hewitson as the female of *T. orcynia* we have lost sight of, but we do not hesitate to say that it has nothing to do with the present species. The figure of the male is very unsatisfactory, and without the type not capable of recognition with any degree of certainty.

We have a single specimen from the valley of the Polochic, which we place here with considerable doubt. The blue is slightly more extended towards the apex of the primaries than in typical *T. orcynia*, and the underside is darker; the inner band of the secondaries is scarcely edged with a darker hue, though the other markings seem all in their places.

Having only one example of this form, we leave it under *T. orcynia*—at least for the present.

125. **Thecla iopas**, sp. n. (Tab. LVI. figg. 4, 5 ♂.)

Alis saturate cyaneis; anticis costa et margine externo nigris; posticis marginibus nigris, lobulo anali puncto rubro, ciliis ad angulum analem albidis: subtus brunneis, linea communi discali nigricante in posticis fracta ad marginem internum angulata, margine ipso nigro introrsum albo limbato, linea altera submarginali nigricante, lobulo anali nigro puncto rubro introrsum, macula juxta eum nigra albo atomata, macula nigra inter ramos medianos introrsum rubro cincta.

Hab. NICARAGUA, Chontales (*Belt*).

We describe and figure this species from a single male specimen from Belt's collection. We know of no species with which we can with advantage compare it.

126. **Thecla ahola**.

Thecla ahola, Hew. Ill. Diurn. Lep. p. 82, t. 35. ff. 73, 74¹.

Alis supra viridi-cyaneis; anticis costa et dimidio apicali fuscis; posticis, apice late, margine externo quoque fuscis: subtus sordide griseis; anticis fasciis duabus albidis, una ultra cellulam, altera submarginali; posticis fasciis duabus ejusdem coloris, una per cellulam altera ultra eam sinuosa ad marginem internum bene refracta, lineola ad cellulæ finem quoque albida et seriebus duabus submarginalibus lunularum ejusdem coloris, ocellis duabus rubidis nigro pupillatis, una submarginali inter venam medianam et ramo suo secundo altera ad angulum analem.

♀ nobis ignota.

Hab. MEXICO (*mus. Hew.*¹).—COLOMBIA¹; VENEZUELA.

Our specimens of this species are said to be from Venezuela; but in the Hewitson collection there is an example from Mexico, on which authority we include the species in our fauna.

127. **Thecla balius**, sp. n. (Tab. LVI. figg. 6, 7 ♂.)

Alis nigris; anticis disco infra cellulam usque ad marginem internum et posticis præter marginem lætissime cæruleis; posticis, lobulo anali rubro, macula alba utrinque notata: subtus griseo-fuscis, linea communi discali fusca extrorsum albo limbata, in posticis ad marginem internum fracta et bene angulata, introrsum rubro marginata, linea altera submarginali fusca ad angulum analem nigra, albo introrsum marginata, lobulo anali et maculis duabus juxta eum rubro introrsum cinctis, margine externo nigricante introrsum albo limbato, fronte inter oculos rubida.

♀ mari similis, colore alarum cæruleo pallidiore, maculis tribus submarginalibus ad angulum posticarum analem.

BIOL. CENTR.-AMER., Rhopal., Vol. II., *September* 1887.

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Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*).—COLOMBIA.

We have long had in our possession a worn specimen from Guatemala of this brilliant *Thecla*, but it is only recently that we have received a fresh male through Mr. Wheeler's kindness, who obtained his specimen in the interior of Colombia. The species has no near ally with which we are acquainted.

We figure the Colombian specimen.

7. *T. BASSANIA* section.

128. *Thecla bassania*.

Thecla bassania, Hew. Descr. Lyc. p. 14¹; Ill. Diurn. Lep. p. 117, t. 47. ff. 217, 218².

Alis nitide cyaneis; anticis costa, apice late, et margine externo fuscis; posticis costa late, margine externo quoque fuscis, lobulo anali indistincte fulvo notato: subtus fuscis, lineola duplici ad cellulæ finem, linea ultra eam quoque duplici (catenæ simili) lineisque duabus submarginalibus sordide albis; posticis lineis duabus duplicibus valde irregularibus (catenæ similibus) una per cellulam, altera ultra eam, lineisque duabus ad cellulæ finem et duabus submarginalibus sordide albis, lobulo anali et macula inter ramos medianos nigris introrsum castaneo limbatis, inter eos macula fusca albido atomata.

♀ mari similis.

Hab. MEXICO^{1 2}, Cordova (*Höge*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); COSTA RICA, Irazu (*Rogers*); PANAMA, Peña Blanca (*Champion*).

T. bassania is a somewhat peculiar species, allied to *T. oreala* of South Brazil, from which it differs in the colour of the wings above and in other minor points. So far as we know, it is restricted in its range to Central America and Southern Mexico, whence the types were procured. It is nowhere common, but we have more specimens from Costa Rica than from any other place.

8. *T. CÆLICOLOR* section.

129. *Thecla cælicolor*.

Strymon cælicolor, Butl. & Druce, Cist. Ent. i. p. 106¹; Butl. Lep. Ex. p. 158, t. 57. f. 6².

Thecla cælicolor, Hew. Ill. Diurn. Lep. p. 171³.

Thecla hena, Hew. Ill. Diurn. Lep. p. 171, t. 67. ff. 486, 487⁴.

Alis schistaceo-cæruleis; anticis costa, apice et margine externo late nigricanti-fuscis; posticis angulo apicali et margine externo nigricantibus; subtus pallide brunnescens, linea communi discali alba ad marginem posticarum internum angulata et introrsum nigro marginata, linea altera submarginali alba in anticis fusco in posticis nigro extrorsum limbata, lobulo anali nigro, area juxta eum rubra, macula nigra rubro introrsum cincta inter ramos medianos, juxta eam macula nigra albo atomata; anticis linea alba ad cellulæ finem (interdum absente).

♀ alis obscure brunneis; posticis interne cæruleo atomatis; subtus alis maris similibus.

Hab. NICARAGUA, Chontales (*Belt*³); COSTA RICA (*Van Patten*^{1 2}); PANAMA, Volcan de Chiriqui (*Arcé*).

Of this scarce species we have, including the type, three Costa-Rican specimens before us and two from the State of Panama. Two of these Costa-Rican insects and the female

from Panama have no white line at the end of the cell of the primaries, which is present in the type, in the male from Panama, and in the Nicaraguan example. Failing other differences, we do not think the presence or absence of this line is sufficient for their separation. *T. pactya* of Colombia is nearly allied to *T. caelicolor*, but has the blue of the upper surface of a brighter hue and other minor differences on the underside.

9. *T. NISÆE* section.

130. *Thecla nisæe*, sp. n. (Tab. LVI. figg. 8, 9 ♂.)

Alis supra violaceo-purpureis; anticis costa et margine externo nigris; posticis angulo apicali et margine externo quoque nigris, lobulo anali puncto rubro: subtus saturate brunneis, linea communi discali nigra in posticis fracta et extrorsum albo limbata, lobulo anali nigro, macula nigra inter ramos medianos introrsum rubro anguste limbata, linea altera nigra intra eam, plaga juxta eam nigra albo atomata.

♀ nobis ignota.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Ribbe*).—COLOMBIA.

This pretty species, of which we have several specimens from the State of Panama, seems allied to *T. galliena* of the lower Amazons and Guiana, but may at once be distinguished by the rich purple colour of the wings above, these in the allied species being indigo-blue. Our Colombian specimens are from Mr. Wheeler's collection, who captured them in the interior of that country, but the exact spot was not recorded.

We figure one of Mr. Champion's Bugaba specimens.

10. *T. MYRSINA* section.

131. *Thecla myrsina*. (Tab. LVI. fig. 10 ♂.)

Thecla myrsina, Hew. Ill. Diurn. Lep. p. 184, t. 73. ff. 571, 572¹.

Alis violaceis, marginibus externis et costa anticarum fusco-nigris, lobulo posticarum anali rufo: subtus griseofuscis, ad basin et fascia lata communi discali saturate fuscis hac in anticis extrorsum albo limbata in posticis utrinque albido marginata, linea submarginali diffusa albido utrinque indistincte marginata, lobulo anali nigro, macula juxta eum nigra albo atomata, puncto inter ramos medianos nigro introrsum rubro cincta, margine externo fusco introrsum albido limbato.

Hab. NICARAGUA, Chontales (*Belt*¹); PANAMA, Chiriqui (*Ribbe*).—COLOMBIA.

Originally described from specimens taken by Belt at Chontales, whence we also have several examples from the same source, one of which we now figure. It is allied to *T. orcidia* and *T. aunus*, but clearly distinguishable from both those species.

132. *Thecla orcidia*. (Tab. LVI. figg. 11, 12 ♂, 13 ♀.)

Thecla orcidia, Hew. Ill. Diurn. Lep. p. 183, t. 73. ff. 560, 561¹.

Alis obscure cyaneis, costa et marginibus externis nigricantibus; posticis lobulo anali rubro: subtus ad basin et area discali nigricanti-brunneis, linea communi discali nigra introrsum late umbrino in posticis extrorsum albido limbata, margines externos versus pallide fusco nebulosa, a vena costali usque ad ramum medianum primum fere recta, deinde ad marginem internum angulata, lobulo anali nigro introrsum

umbrino atomato, macula juxta eum nigra albo atomata, puncto nigro inter ramos medianos introrsum rubro cincta.

♀ alis fuscis cæruleo lavatis; subtus alis maris similibus, sed omnino dilutioribus.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); PANAMA, David (*Champion*), Chiriqui (*Trötsch*), Panama city (*Ribbe*).—COLOMBIA; AMAZONS VALLEY¹.

There is some variation in the specimens we have referred to this species as regards the width of the dark red inner border of the discal band. In the type this border is not present; in other specimens it is very narrow, so that, failing other distinctive characters, we have no ground for recognizing more than one species. Our examples from the Polochic valley are in very poor condition, but we have little doubt that they really belong here.

Chiriqui specimens are figured.

133. ***Thecla tabena***, sp. n. (Tab. LVI. figg. 14, 15 ♂.)

Alis fusco-brunneis unicoloribus: subtus magis fusciscentibus, litura communi lata per cellularum fines flava, marginibus externis flavo-fuscis, lineola irregulari submarginali includente, linea communi discali flava ad marginem posticarum internum valde angulata et introrsum nigro limbata, lobulo anali nigro, macula juxta eum nigro atomata, tertia inter ramos medianos introrsum umbrino cincta.

♀ mari similis, sed alis subtus dilutioribus.

Hab. MEXICO, Cordova (*Rümelin*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

We have only three specimens of this species, a male and a female from Mexico and a male from Guatemala. The species is allied to *T. myrsina* so far as regards the distribution of the markings of the underside, but differs above in being brown instead of violet.

The Mexican male is figured.

134. ***Thecla tarpa***, sp. n. (Tab. LVI. figg. 16, 17.)

T. tabenæ similis; alis litura communi et linea discali albicantibus, margine externo anticarum albicantiore quoque differt.

Hab. MEXICO, Jalapa (*W. Schaus*).

A single specimen sent us by Mr. Henry Edwards, to whom it was sent by Mr. Schaus, is all that we have seen of this species. It is a close ally of *T. tabena*, but the differences will be best understood by reference to the figures.

11. *T. CALATIA* section.

135. ***Thecla calatia***.

Thecla calatia, Hew. Ill. Diurn. Lep. p. 148, t. 58. f. 375¹.

Alis fuscis; posticis ad angulum analem albo limbatis: subtus flavis, parte basali et litura discali nigrican-

tibus, hac linea flava includente, in posticis ad marginem internum albicante nigro introrsum limbata, lobulo anali nigro, plaga inter ramos medianos aurantia puncto nigro.
♂ nobis ignotus.

Hab. GUATEMALA, Cerro Zunil (*Champion*); NICARAGUA, Chontales (*Belt*¹).

This species was described by Hewitson from specimens in Belt's collection, and we have one example from the same source. Mr. Champion took a single specimen on the slopes of the Cerro Zunil which agrees with Nicaraguan examples, and these are all that we have seen. All three are females. The species has no near allies that we are acquainted with.

12. T. ARZA section.

136. *Thecla arza*.

Thecla arza, Hew. Ill. Diurn. Lep. p. 178, t. 70. ff. 523, 524¹.

Alis supra brunneis; posticis, lobulo anali rufo, maculis duabus ad angulum analem fuscis, linea submarginali albida: subtus lactescenti-albis, parte basali et litura discali fuscis, hac linea fusca (extrorsum albo marginata) limbata, marginibus externis albidis, linea submarginali lunulisque submarginalibus fuscis, lobulo posticarum anali nigro introrsum rufo marginato, plaga fusca juxta eum albo atomata, macula nigra inter ramos medianos introrsum rufo cincta.

Hab. NICARAGUA, Chontales (*Belt*¹); PANAMA, Volcan de Chiriqui (*Champion*).

This was another of Belt's discoveries, from whose collection we have a single specimen. Mr. Champion likewise met with it in the Volcan de Chiriqui at an elevation between 2000 and 4000 feet above the sea. At first sight *T. arza* resembles *T. tabena* on the underside; but the position of the discal line with reference to the discal band is very different in the two species and their respective allies, as reference to the figures will show.

137. *Thecla paralus*, sp. n. (Tab. LVI. figg. 18, 19.)

T. arzae valde affinis, sed alis litura communi albida multo minus obvia, magis grisea, margine externo concolore distinguenda.

Hab. GUATEMALA, Dueñas (*Champion*); COSTA RICA, Cache (*Rogers*).

There are but two specimens of this species in our possession, one from each of the localities cited, that from Dueñas being figured. Its alliance to *T. arza* is obvious, but the much less definite light-coloured band of the wings beneath renders its recognition easy.

13. T. EPOPEA section.

138. *Thecla epopea*.

Thecla epopea, Hew. Equat. Lep. p. 61¹; Ill. Diurn. Lep. p. 168, t. 66. ff. 472-474².

Alis nitente cæruleis; anticis, costa, apice et margine externo nigris; posticis angulo apicali et margine

externo quoque nigricantibus : subtus fuscis, lineis tribus communibus albis, una discali introrsum fusco limbata et marginem posticarum internum bene angulata, duabus submarginalibus interiore extrorsum fusco (ad marginem posticarum internum nigro) limbata, lobulo anali nigro, area juxta eum introrsum rubra, macula magna rubra inter ramos medianos puncto nigro, margine externo anguste nigro introrsum limbato.

♀ mari similis, colore cæruleo alarum paullo dilutiore.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA, Cache, Rio Sucio (*Rogers*); PANAMA, Volcan de Chiriqui (*Ribbe*).—VENEZUELA; ECUADOR^{1 2}.

A well-marked species, having no very near allies, of which we have a considerable series of specimens ranging from Nicaragua to the State of Panama.

14. T. ODINUS section.

139. *Thecla odinus*, sp. n. (Tab. LVI. figg. 20, 21 ♀.)

Alis fusco-nigris; anticis cellulæ basi et infra eam ad marginem internum et posticis interne cæruleis, his linea submarginali ad angulum analem quoque cærulea: subtus rufescenti-brunneis; anticis ad marginem externum ferrugineis, linea discali communi argenteo-cærulea in posticis perfracta, lineola altera ad cellulæ alarum finem coloris ejusdem, lineis duabus submarginalibus pallidis interiore argenteo-cæruleo atomata, lobulo anali et macula inter ramos medianos nigris, inter eos macula argentea omnibus ferrugineo introrsum limbatis, margine interno nigro.

♂ adhuc ignotus.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

We have but a single female specimen of this pretty species, taken by Mr. Champion on the Volcan de Chiriqui, at an altitude of between 2500 to 4000 feet above the sea.

15. T. MÆONIS section.

140. *Thecla mæonis*, sp. n. (Tab. LVI. figg. 22, 23 ♂.)

Alis fusco-nigris; anticis cellula et infra eam ad angulum analem et posticis præter costam et marginem externum læte cæruleis, ciliis rufescentibus: subtus ferrugineis, lineis duabus communibus transversis albis, una discali rufescente introrsum limbata, altera submarginali extrorsum rufo (ad marginem internum nigro) marginata, lobulo anali et puncto inter ramos medianos nigris introrsum rufo late limbatis, macula inter eos quoque nigra albo atomata.

♀ nobis ignota.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo (*F. D. G. & O. S., Champion*).

We have two specimens (one of which we figure) of this species, both from San Gerónimo in Guatemala. These agree with Mexican specimens in Mr. Schaus's collection. The species has no near ally with which we are acquainted.

16. T. PARON section.

141. *Thecla paron*, sp. n. (Tab. LVI. figg. 24, 25 ♂.)

Alis fusco-nigris; anticis infra cellulam ad marginem internum cæruleo atomatis, macula indistincta nigra ad

cellulæ finem; posticis medialiter cæruleo atomatis: subtus viridi-fuscis, lineolis duabus communibus angustissimis albis, una discali introrsum fusco limbata in posticis valde sinuata, altera submarginali lunulata extrorsum fusco limbata, lobulo anali nigro atomis variis castaneis, juxta eum macula nigra subtriangulari introrsum castaneo limbata inter ramos medianos, margine externo fusco sordide albo tenuissime introrsum limbato.

Hab. GUATEMALA, Cerro Zunil, Purula (*Champion*).

We have two male specimens of this interesting little species, both captured by Mr. Champion in Guatemala, that from Purula being figured. Its nearest ally seems to be *T. tema* of the Amazons valley, but it has only a single very short alar appendage instead of two, and the underside of the wings is of a greenish-black hue instead of a chocolate-brown.

142. **Thecla heraclides**, sp. n. (Tab. LVI. figg. 26, 27.)

T. paroni aliquot similis, sed alis magis obtusis, supra viridibus, anticis plaga magna ad cellulæ finem et ultra eam certa luce nigricantibus.

Hab. COSTA RICA, Cache (*Rogers*).

We have but a single rather defective specimen of this species, captured by Mr. Rogers in Costa Rica. It is doubtless allied to *T. paron*, but the wings are brilliant green above, with a large dark discal patch. A closely allied species is found in Venezuela, which has the discal spot of the primaries of a rich blue. Our specimen of the latter was formerly in Dr. Kaden's collection, and bears the manuscript name of *sergius*, which we here adopt*.

17. T. DODAVA section.

143. **Thecla dodava**. (Tab. LVI. figg. 28, 29 ♂.)

Thecla dodava, Hew. Ill. Diurn. Lep. p. 200, t. 79. ff. 647, 648¹.

Alis læte purpureis; anticis apice et margine externo nigricanti-fuscis, plaga ultra cellulam nigra, aliis metallico-plumbeis: subtus fuscis, lineola communi discali alba introrsum fusco limbata in posticis fracta ad marginem internum angulata et fulvo introrsum limbata, lunulis fuscis submarginalibus introrsum albo limbatis, atomis variis fulvis ad angulum posticarum analem, macula inter ramos medianos fulva puncto magno nigro; anticis dimidio interno plumbeo-cæruleo.

Hab. PANAMA, Chiriqui (*Ribbe*¹), Volcan de Chiriqui (*Champion*).

We have two male specimens of this pretty little species, both from the district of Chiriqui—one, the type, lent us by Dr. Staudinger; the other, which we figure, was taken by Mr. Champion.

* **Thecla sergius**, sp. n.

T. heraclidii affinis et alarum pagina superiore ejusdem coloris, sed anticis margine externo latius nigricante et plaga ad cellulæ finem læte cerulea.

Hab. VENEZUELA (*Dr. Moritz*).

Mus. nostr.

144. **Thecla endela.** (Tab. LVI. figg. 30, 31 ♀.)*Thecla endela*, Hew. Ill. Diurn. Lep. p. 168, t. 66. ff. 470, 471¹.

Alis purpureo-cyaneis; anticis apice et margine externo nigricantibus; posticis quoque nigricante anguste marginatis, ciliis fuscis: subtus cinereis, linea communi discali nigricante, extrorsum albo, introrsum fulvo, limbata, in posticis ad venam medianam fracta, ad marginem internum angulata, linea obsoleta ad cellulæ finem albida utrinque fusco limbata, linea altera submarginali lunulata utrinque albo limbata, lobulo anali nigro introrsum rubido, macula nigra inter ramos medianos introrsum rubido cincta, macula fusca juxta eam albo atomata, margine externo anguste nigricante introrsum albo limbato.

♀ mari similis, sed alis supra magis plumbeis.

Hab. COSTA RICA (*Van Patten*), Rio Sucio (*Rogers*); PANAMA, Bugaba (*Champion*).— VENEZUELA¹.

This species was described from a specimen said to be from Venezuela, which is now before us. We have three examples from Central America, all of them females, but we have no doubt that they belong to this species.

A Bugaba specimen is figured.

145. **Thecla critola.***Thecla critola*, Hew. Ent. Monthly Mag. xi. p. 105¹; Ill. Diurn. Lep. p. 197, t. 78. ff. 633, 634².

Alis læte violaceo-cyaneis, marginibus omnibus fuscis; anticis plaga magna violaceo-nigra ad cellulæ finem: subtus obscure griseis fusco undique indistincte vermiculatis, fascia indistincta communi discali fulva utrinque fusco limbata in posticis leviter sinuosa; macula inter ramos medianos et lobulo anali fulvis nigro variegatis.

Hab. MEXICO (*G. Mathew*^{1 2}).

This is a very isolated species, with no near allies. The type was taken by Mr. Gervase Mathew in Mexico, doubtless at some place on the Pacific coast, but which Hewitson omitted to record.

18. T. HESPERITIS section.

146. **Thecla hesperitis.***Bithys hesperitis*, Butl. & Druce, Cist. Ent. i. p. 107¹; Butl. Lep. Ex. p. 159, t. 57. f. 14².*Thecla lugubris*, Moschl. Verh. zool.-bot. Ges. Wien, xxvi. p. 301, t. 3. f. 4³.

Alis nigricanti-fuscis; posticis plaga discali et angulo anali cæruleis, lobulo anali rufo, maculis submarginalibus juxta eum nigris: subtus fusco-brunneis, linea communi discali introrsum nigra, extrorsum alba, in anticis obsoleta, in posticis fracta, ad marginem internum angulata, introrsum rufo limbata, lobulo anali nigro (pupillo cæruleo) introrsum rubro atomato, macula triangulari nigra inter ramos medianos introrsum rubro cincta, macula altera nigricante juxta eam albo atomata, margine nigro introrsum albo limbata, ciliis sordide albidis.

♀ mari similis, sed alis supra magis cærulescentibus.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{1 2}), Irazu, Cache (*Rogers*); PANAMA, Volcan de Chiriqui (*Arcé*), Bugaba, David (*Champion*), Chiriqui (*Ribbe, Trötsch*), Panama city (*Ribbe*).—SOUTH AMERICA, from Colombia to the Amazons valley, Guiana³, and Brazil.

This is an abundant species in Central America from Guatemala southwards through Costa Rica (whence the types were derived) to the State of Panama, and thence throughout Tropical South America to Brazil. The type and Central-American specimens have the black spot between the median branches of the secondaries broadly edged with red; this colour in South-American examples becomes a reddish brown, but the difference is very slight and hardly of specific value. The southern form has been described under the name of *Thecla lugubris* by Herr Möschler.

19. T. XENETA section.

147. **Thecla xeneta.**

Thecla xeneta, Hew. Ill. Diurn. Lep. p. 193, t. 77. ff. 611, 612¹.

Alis indicis; posticis medialiter nitide cyaneis: subtus obscure brunneis ad basin pallidioribus, linea communi discali nigra extrorsum albido limbata, marginem posticarum internum versus angulata, lobulo anali nigro, maculis duabus juxta eum nigris, proxima albo sparsim atomata.

♀ alis supra omnino brunneis; subtus alis maris similibus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Cubilwitz (*Champion*); NICARAGUA, Chontales (*Belt*¹); PANAMA, Bugaba (*Champion*), Line of Railway (*M'Leannan*).—SOUTH AMERICA, from Colombia to the Amazons valley and South-eastern Brazil¹.

Hewitson's type-specimens came from Brazil and Nicaragua, from which widely separated localities we, too, have examples, as also from many intermediate points. All these specimens agree closely with one another, but have a slight difference in the tint of the blue on the secondaries, the Guatemalan example being the darkest and one from Colombia the palest and most brilliant.

148. **Thecla origo**, sp. n. (Tab. LVI. figg. 32, 33 ♂.)

T. xenetæ similis, sed alis supra plerumque saturatioribus colore posticarum cyaneo magis restricto: subtus maculis nigris ad angulum analem rubro introrsum late circumcinctis.

Hab. PANAMA, Chiriqui (*Trötsch*), Panama city (*Ribbe*).—AMAZONS VALLEY.

We have no Central-American specimens of this species, but numerous examples from the valley of the Amazons; these show considerable variation in the amount of blue colour on the secondaries. Dr. Staudinger has lent us two males from the State of Panama which also differ from each other in the same particular, that from Panama having more blue than any of the specimens before us, and consequently has a narrower dark border, but the common character of the red margins to the black spots near the anal angle of the secondaries beneath connects them together and serves to separate them from *T. xeneta*.

The Chiriqui specimen is figured.

149. **Thecla thama.**

Thecla thama, Hew. Ill. Diurn. Lep. p. 189, t. 75. ff. 591, 592¹.

Alis supra nitide cæruleis; anticis costa et apice nigricanti-indicis, margine externo nigro: subtus fuscis, lineola ad cellularum fines obsoleta extrorsum albida introrsum fusca, linea communi discali fusca extrorsum albo in posticis introrsum rubro marginata, ad marginem internum angulata, macula rubra inter venam subcostalem et ramum medianum primum, angulo anali nigro rubro notato, macula inter ramos medianos arcuata rubra, puncto nigro extrorsum, et introrsum nigro marginata.

Hab. PANAMA, Chiriqui (*Trötsch*), Veraguas (*Arcé*).—COLOMBIA¹.

T. thama has a slight resemblance to *T. xeneta*, but may readily be distinguished by the extension of blue on the upperside of the primaries, and beneath by the greater development of red towards the anal angle of the secondaries. Hewitson's type came from Santa Marta in Northern Colombia, and we have a specimen from the western side of that country. The latter agrees with Panama examples.

20. T. NITETIS section.

150. **Thecla nitetis**, sp. n. (Tab. LVII. figg. 1, 2 ♂, 3 ♀.)

Alis supra brunneis unicoloribus: subtus viridescenti-glaucis, linea communi discali fusca in anticis obsoleta in posticis perfracta, extrorsum albo introrsum fulvo marginata; posticis maculis tribus ad angulum analem fulvis nigro circumcinctis, ea inter ramos medianos puncto nigro, lobulo anali nigro et macula juxta eum fusca albo atomata.

♀ alis brunnescenti-fuscis; posticis parte distali glauco-cæruleis, margine et maculis quatuor submarginalibus nigris: subtus mari similis, sed alis minus viridescens; anticis linea discali magis obvia.

Hab. MEXICO, Jalapa (*W. Schaus*), mountains of Oaxaca (*Fenochio*).

We have but two specimens of this pretty species, both from Southern Mexico. The greenish cast of the under wings recalls such species as *T. badeta*, but we doubt if there is any real alliance.

21. T. BEON section.

151. **Thecla beon.** (Tab. LVII. figg. 4, 5 ♂, 6 ♀.)

Papilio beon, Cram. Pap. Ex. t. 319. B, C¹.

Tmolus isobea, Butl. & Druce, Cist. Ent. i. p. 108²; Butl. Lep. Ex. p. 161, t. 57. f. 2³.

Thecla bactra, Hew. Ill. Diurn. Lep. p. 194, t. 77. ff. 619, 620⁴.

Alis fusco-nigris; posticis macula discali subtriangulari cærulea, maculis duabus ad angulum analem indistinctis nigris, lobulo anali nigro puncto rufo: subtus brunnescentibus, linea communi discali nigricante extrorsum albo introrsum rubro limbata, in posticis ad marginem internum angulata; posticis linea altera submarginali lunulata ad angulum apicalem obsoleta, lobulo anali nigro introrsum rubro marginato, macula nigra juxta eum albo atomata et introrsum plaga rubra, macula altera rubra inter ramos medianos puncto nigro.

♀ mari similis, alarum colore cæruleo pallidiore et magis diffuso, dimidium anticarum basalem amplexante, maculis nigris ad angulum posticarum analem magis obviis.

Hab. MEXICO, Mazatlan (*Mathew*), Cordova (*Rümeli*), Jalapa (*Höge*, *W. Schaus*);

GUATEMALA, Polochic valley, Choctum (*F. D. G. & O. S.*), Cubilwitz, Panzos, Telemán, Chiacam, Panima, San Gerónimo, Dueñas, Zapote, El Reposo, San Isidro (*Champion*), Coban (*Von Türckheim*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*⁴); COSTA RICA (*Van Patten*^{2 3}), Irazu, San Francisco, Cache (*Rogers*); PANAMA, Volcan de Chiriqui (*Arcé, Champion*), Bugaba (*Champion*), Calobre (*Arcé*), Lion Hill (*M. Leannan*), Panama city (*J. J. Walker*).—SOUTH AMERICA, from Colombia to the valley of the Amazons, Guiana, and Eastern Brazil.

We have selected upwards of 120 specimens of this species to represent its range and variation, and we do not see our way to making in them any specific separation. The types of *T. isobea* of Butler and Druce are before us, and these do not differ in any way from many other individuals of the series, nor does the description make any allusion to the points wherein they are supposed to differ. *Thecla bactra* appears to have been based upon a female example of this species from Nicaragua. Hewitson is silent as to the sex of his type, nor does it seem to have occurred to him that the species he was describing had any relationship to *T. beon*. In North America two forms of this species occur, both of which differ in the blue patch of the secondaries; the Florida form, *T. hugon* of Godart, having scarcely any blue at all on those wings. We have several specimens from Pernambuco, given us by the late W. A. Forbes; on comparing these with our Guatemalan examples we find no practical difference. In Guatemala *T. beon* ranges to an altitude of 5000 feet above the sea.

The specimens figured are from San Gerónimo, Guatemala.

152. *Thecla capeta*.

Thecla capeta, Hew. Ill. Diurn. Lep. p. 193, t. 77. ff. 614, 615¹.

Alis nigricanti-fuscis; posticis plaga cyanea venis tripartita ad angulum analem, linea ad eodem angulum submarginali albida: subtus umbrinis, linea communi nigra extrorsum albo limbata ad marginem posticarum internum perfracta, linea altera obscura marginem externum propiore fusca, ad marginem posticarum internum magis distincta; posticis macula magna inter ramos medianos rubra, macula triangulari nigra instructa, lobulo anali nigro et supra eum macula rubra, margine externo pro maiore parte nigro introrsum albo limbato.

Hab. NICARAGUA¹ (*mus. Hewitson*).

There is a single male specimen of this species in the Hewitson collection in the British Museum, which we have not been able to associate with *Thecla beon* and its allies, though it evidently belongs to that section of the genus. Hewitson states that he described a female, but this seems to us an error.

153. *Thecla amplia*. (Tab. LVII. figg. 7, 8 ♂.)

Thecla amplia, Hew. Ill. Diurn. Lep. p. 195, t. 77. ff. 621, 622¹.

Alis supra purpureo-nigris; posticis medialiter cæruleis, lobulo anali et punctis duobus juxta eum nigris: subtus umbrino-brunneis, fascia communi discali fusca extrorsum albo limbata ad marginem posticarum

internum bene angulata, introrsum ochraceo-rubro marginata, linea submarginali fusca albido introrsum marginata, plaga magna extra eam a ramo mediano usque ad angulum analem ochraceo-rubra, lobulo anali nigro, macula juxta eum nigra albo atomata, macula inter ramos medianos quoque nigra.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*¹, *Janson*).

We have three specimens of this species agreeing with Hewitson's type, but none of them in good condition. The species clearly differs from *T. beon*, to which it is allied, by the red marks on the wings beneath of the latter species being of an ochraceous tint and in the discal band of the primaries having no inner border; the portion of the band also which passes between the median branches of the secondaries is straight and not arched. The type formed part of Mr. Belt's Nicaragua collection.

We figure a Chontales specimen.

154. ***Thecla autoclea*.** (Tab. LVII. figg. 9, 10 ♂.)

Thecla autoclea, Hew. Ill. Diurn. Lep. p. 194, t. 77. ff. 616, 617¹.

Alis supra brunneis; posticis, angulo anali puncto rubro instructo, margine externo nigro lineola alba marginata et intra eam maculis duabus submarginalibus nigricantibus, ciliis sordide albidis: subtus *T. beoni* persimilis; posticis linea discali inter ramos medianos fere recta, macula extra linea inter venam submedianam et ramum medianum primum absente, capite inter oculos rubro.

♀ mari similis, sed posticis rubro ad angulum analem tinctis.

Hab. MEXICO, Mazatlan (*G. Mathew*), Jalapa (*W. Schaus*); NICARAGUA, Chontales (*Belt*¹); PANAMA, David (*Champion*), Panama city (*Ribbe*).—VENEZUELA.

This is another ally of *T. beon*, the markings of the under surface being very similar, but showing the differences pointed out above on the upperside, where it differs widely in being of a nearly uniform brown. A single female from San Esteban, Venezuela, exactly resembles the male.

Hewitson's type is a female from Belt's Nicaragua collection. Our figure represents a specimen of the same sex from David.

155. ***Thecla nortia***, sp. n. (Tab. LVII. figg. 11, 12 ♂, 13 ♀.)

Alis fusco-nigris, area anticarum juxta marginem internum et posticis intus obscure cæruleis, lobulo anali puncto rufo, lineola submarginali ad angulum analem et ciliis sordide albis: subtus griseis, linea communi discali extrorsum albo limbata in posticis ad marginem internum bene angulata et introrsum fulvo limbata; posticis lobulo anali nigro, macula fulva juxta eum, macula nigra inter ramos medianos introrsum rubescenti-fulvo circumcincta, plaga nigra juxta eam albo atomata, linea lunulata submarginali fusco utrinque albo atomata.

♀ alis supra fuscis, anticis ad basin et posticis plerumque cæruleo lavatis, aliter alis maris similibus.

Hab. GUATEMALA, San Gerónimo, San Isidro (*Champion*).

We have a pair of this species, the male taken at San Isidro, the female at San Gerónimo, both in Guatemala. The female has a general resemblance to that sex of *T. mycon*, but the male is widely different.

22. *T. DENARIUS* section.156. *Thecla denarius*.

Tmolus denarius, Butl. & Druce, Cist. Ent. i. p. 109¹; P. Z. S. 1874, p. 356²; Butl. Lep. Ex. p. 162, t. 57. f. 3³.

Thecla calena, Hew. Ill. Diurn. Lep. p. 187, t. 74. ff. 581, 582⁴.

Alis brunneis; anticis plaga magna discali ochraceo-brunnea; posticis, lobulo anali medialiter rufo: subtus fuscis, lineola ad cellularum fines fusca albido extrorsum limbata, linea communi discali fusca in posticis extrorsum albo introrsum umbrino limbata ad ramum medianum fracta ad marginem internum angulata, linea altera communi submarginali in posticis lunulata fusca ad angulum analem nigricante; posticis lobulo anali nigro, macula nigra juxta eum albo atomata, macula nigra inter ramos medianos introrsum umbrino cincta.

♀ mari similis, sed alis supra brunneis fere unicoloribus; subtus omnino pallidioribus.

Hab. NICARAGUA, Chontales (*Belt*⁴); COSTA RICA (*Van Patten*^{1 2 3}), Rio Sucio, Irazu, Cache (*Rogers*); PANAMA, Chiriqui (*Arcé*).

This species was founded upon a female specimen forming part of Van Patten's Costa Rican collection, from which country Mr. Rogers has sent us several males, which agree with others of that sex from Nicaragua and with the figure of *Thecla calena* in Hewitson's 'Illustrations of Diurnal Lepidoptera.' *T. denarius* appears to be a common species in those countries.

157. *Thecla sethon*, sp. n. (Tab. LVII. figg. 14, 15 ♂.)

T. denario similis, sed anticis macula ochraceo-brunnea nulla, area costali, præcipue ad apicem, obscuriore; posticis margine externo ipso nigro: subtus brunnescentioribus; posticis fascia discali rufescente (haud umbrino) limbata.

Hab. MEXICO, Milpas (*Forrer*), Jalapa (*W. Schaus*); GUATEMALA, Chisoy valley (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*F. D. G. & O. S.*, *Champion*), Calderas (*Champion*); COSTA RICA, Cache (*Rogers*).

This is apparently an upland species, Mr. Forrer's specimen having been taken at an altitude of nearly 6000 feet, and the Calderas examples (one of which, a male, we figure) at a still higher elevation. The costal margin of the primaries is rather dark, and there is no discal patch. These points seem to distinguish *T. sethon* from the closely-allied *T. denarius*.

158. *Thecla plusios*, sp. n.

T. denario similis, sed alis undique brunnescentioribus, anticis area discali haud fusco adumbratis forsan distinguenda.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Zapote, Tucuru (*Champion*), Polochic valley (*F. D. G. & O. S.*), Coban (*Von Türckheim*); PANAMA, Chiriqui (*Ribbe*).

This is perhaps a doubtful species, but we have separated it, as we do not think our specimens agree satisfactorily with either *T. denarius* or *T. sethon*. It appears to be a

lowland form, probably reaching to no greater altitude above the sea than 3000 feet. A Chiriqui specimen in Dr. Staudinger's collection is in better condition than any of ours from Guatemala.

159. *Thecla cyphara*.

Thecla cyphara, Hew. Ent. Monthly Mag. xi. p. 106¹; Ill. Diurn. Lep. p. 186, t. 74. ff. 579, 580².

Alis supra brunneis; anticis dimidio anali (præter marginem externum) rufo-aurantiis; posticis (præter costam et marginem externum) ejusdem coloris, lobulo anali rufo: subtus griseo-fuscis, linea communi discali fusca extrorsum albo introrsum late rufo marginata, lobulo anali nigro introrsum rufo, macula fusca juxta eum albo atomata, macula nigra rufa inter ramos medianos puncto nigro, margine externo nigro introrsum albo limbato.

♀ alis omnino fusciscentibus.

Hab. MEXICO, Cordova (*Rümeli*), Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo (*Champion*); PANAMA¹, David (*Champion*), Calobre (*Arcé*), Panama city (*Ribbe*).—VENEZUELA.

Hewitson's description of this species was taken from a Panama specimen. We have typical specimens from Mr. Druce's collection said to have come from Venezuela; these agree with our Central-American examples, where the species is widely distributed, though nowhere common.

T. cyphara is allied to *T. endymion* of the Amazons valley and Brazil, but differs in the distribution of the orange colour on the upperside of the wings.

23. T. CAMISSA section.

160. *Thecla camissa*.

Thecla camissa, Hew. Equat. Lep. p. 66¹; Ill. Diurn. Lep. p. 189, t. 75. ff. 595, 596².

Tmolus charichlorus, Butl. & Druce, Cist. Ent. i. p. 109³; P. Z. S. 1874, p. 355⁴; Butl. Lep. Ex. p. 162, t. 57. f. 10⁵.

Tmolus vespasianus, Butl. & Druce, Cist. Ent. i. p. 109⁶; P. Z. S. 1874, p. 355⁷; Butl. Lep. Ex. p. 161, t. 57. f. 7⁸.

Alis fusco-nigris; anticis cellula et area infra eam usque ad marginem internum purpurescenti-cæruleis; posticis nigris, macula magna subtriangulari purpurescenti-cærulea: subtus fuscis, linea communi discali introrsum nigricante extrorsum alba in posticis fracta ad marginem internum angulata et intus rufo marginata, lobulo anali nigro intus rufo atomata, macula nigra inter ramos medianos intus rufo late marginata, linea supra eam nigra ad angulum apicalem extensa utrinque albido indistincte marginata.

♀ alis supra fuscis, posticis medialiter cæruleo-lavatis: subtus mari similis, sed alis pallidioribus, lineis et maculis omnibus magis distinctis.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*^{3 6}); PANAMA, Bugaba (*Champion*).—SOUTH AMERICA, from Colombia to Ecuador^{1 2} and Peru.

This species was originally described by Hewitson from Ecuador specimens obtained by Buckley at Sarayacu. When subsequently figuring this insect he associated with them specimens captured by Belt at Chontales, and in so doing we believe he was right.

We have several specimens from Nicaragua which agree with the types of *T. charichlorus*, of which *T. vespasianus* is undoubtedly the female, and all should pass under the name of *T. camissa*.

161. *Thecla emessa*.

Thecla emessa, Hew. Ill. Diurn. Lep. p. 111, t. 42. ff. 160, 161¹.

Thecla legytha, Hew. Ill. Diurn. Lep. p. 180, t. 71. ff. 537, 538².

Alis supra obscure fuscis; anticis cellulæ dimidio basali et infra eam ad marginem internum squamis viridibus aspersis, puncto nigro ad cellulæ finem; posticis medialiter squamis viridibus notatis, lobulo anali nigro puncto parvo rubro: subtus pallide fuscis, linea communi discali extrorsum albo limbata in posticis fracta, linea altera submarginali fusca in posticis utrinque albido limbata, lobulo anali nigro introrsum macula rubida, juxta eum plaga fusca albo atomata, macula magna inter ramos medianos rufo puncto nigro, margine externo nigricante introrsum albo limbato, ciliis sordide albis.

♀ alis supra omnino fusca, aliter alis maris similibus.

Hab. NICARAGUA, Chontales (*Belt*²); PANAMA (*Ribbe*).—AMAZONS VALLEY¹.

Dr. Staudinger has sent us a single male of this species captured by Herr Ribbe at Panama, which agrees closely with a male from Mr. Bates's collection taken on the Tapajos river. We notice, however, that the vicinity of the anal lobe of the secondaries on the underside has more red in the Panama than in the Amazon examples.

24. T. CLARINA section.

162. *Thecla clarina*.

Thecla clarina, Hew. Ill. Diurn. Lep. p. 173, t. 68. ff. 497, 498¹.

Alis nigricanti-fuscis; posticis dimidio costali nitide cæruleo ad costam argenteo, lobulo anali rubido: subtus fulvis, linea discali communi distincta alba introrsum rufo limbata in posticis a ramo mediano primo ad costam fere recta ad marginem internum angulata, linea altera submarginali fusca marginem internum versus introrsum argenteo limbata, lobulo anali nigro introrsum rubido, macula nigra juxta eum albo atomata, macula magna inter ramos medianos rubida puncto nigro.

♀ alis fuscis; posticis cæruleo lavatis, aliter alis maris similibus.

Hab. MEXICO¹ (*Mus. Brit.*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); PANAMA, Calobre (*Arcé*).

This species was described from Mexican specimens; but it is found southward as far as the State of Panama. The colour of the upper surface of the wings is not unlike that of *T. atriis*, but is restricted to the costal half of the secondaries; beneath, the clearly defined white discal band crossing both wings is a very conspicuous feature.

163. *Thecla tamos*, sp. n. (Tab. LVII. figg. 16, 17 ♀.)

Alis nigricanti-fuscis; posticis plaga cærulea discali, maculis duabus submarginalibus nigricantibus, lobulo anali medialiter rufo: subtus cervinis, linea communi discali fusca in anticis obsolete in posticis præcipue ad costam late albo extrorsum limbata ad marginem internum rufo introrsum indistincte limbata, linea altera submarginali lunulata fusca introrsum albo limbata, lobulo anali nigro, macula nigra juxta eum albo atomata, macula magna inter ramos medianos rubra puncto nigro.

♀ mari similis, colore cæruleo alarum ad basin posticarum magis extenso.

Hab. COSTA RICA, Rio Sucio, Irazu (*Rogers*); PANAMA, Chiriqui (*Trötsch*).

The conspicuous white band on the underside of this species suggests an alliance with *T. clarina*, but the blue on the upper surface of the secondaries is near the anal angle and not on the costa; it is, too, much less brilliant. A pair from Costa Rica, of which we figure the female, and a single male from Chiriqui are all we have seen of this insect. A species nearly allied to this is found in the mountains of British Guiana *.

25. T. CALUS section.

164. *Thecla calus*.

Polyommatus calus, Godt. Enc. Méth. ix. p. 640¹.

Thecla calus, Hew. Ill. Diurn. Lep. p. 188, t. 75. ff. 585, 586².

Alis fusco-nigris; anticis infra cellulam ad marginem internum, posticis præter marginem externum nitidissime cyaneis: subtus ochraceo-fuscis, linea communi discali extrorsum sordide albo limbata fusco-nigricante ad marginem posticarum internum sinuata; anticis costa et plaga magna triangulari ad cellulæ finem nigricanti-brunneis, posticarum lobulo anali nigro, macula juxta eum nigra albo-atomata, altera submarginali inter ramos medianos nigra, margine nigro albido introrsum limbato.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*).—COLOMBIA; AMAZONS VALLEY².

The conspicuous dark triangular mark on the primaries beneath renders this species easy of recognition. Godart gives America as the origin of his examples; but Hewitson's specimens were from the Amazons, whence we also have obtained it both from San Paolo and Para.

26. T. DEMONASSA section.

165. *Thecla demonassa*.

Thecla demonassa, Hew. Descr. of *Thecla*, p. 25; Ill. Diurn. Lep. p. 148, t. 58. ff. 376–378¹.

Alis anticis nigricantibus; posticis (præter angulum analem et marginem externum) nitidissime cyaneis: subtus fulvis, linea discali communi nigra extrorsum albo introrsum ferrugineo limbato, angulo posticarum anali ferrugineo, lobulo nigro, macula juxta eum nigra ferrugineo atomata, macula inter ramos medianos nigra ferrugineo circumdata.

♀ alis fuscis; anticis ad marginem internum, posticis ad basin obscure cæruleis: subtus mari similis.

Hab. MEXICO, Cordova (*Rümeli*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*).—AMAZONS VALLEY¹.

Except that they are rather smaller, northern examples do not differ from typical specimens from the Amazons valley. The species has no near allies that we are acquainted with.

* *Thecla matho*, sp. n.

T. tamos similis, sed major; subtus linea discali in posticis limbo albo angustiore, linea submarginali undulata (haud lunulata) distinguenda.

Hab. GUIANA BRIT., Carimang river (*Whitely*).

Mus. nostr.

27. T. ATRIUS section.

166. *Thecla atri*us.

*Thecla atri*us, Herr.-Schäff. Samml. ausereur. Schmett. p. 55, ff. 53, 54¹.

Alis anticis brunneo-nigricantibus; posticis nitidissime cæruleis, margine externo anguste nigro, lobulo anali introrsum rubro: subtus ochraceo-fuscis, linea communi discali nigra extrorsum albo in posticis introrsum rubro limbata ad marginem internum angulata, angulo anali rubro, linea argentea transversa bisecta, lobulo anali nigro, macula juxta eum nigra albo atomata, altera inter ramos medianos puncto nigro.

♀ alis multo pallidioribus, colore cæruleo vix obvio.

Hab. GUATEMALA, Cubilguitz (*Champion*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*).—SOUTH AMERICA to the Amazons valley and Guiana¹.

*T. atri*us is a well-known species in South America, being apparently common in the Amazons valley, but much more rare in our own country, whence we have only seen one male from Guatemala and two others from the State of Panama.

167. *Thecla mima*s, sp. n. (Tab. LVII. figg. 18, 19 ♂.)

*T. atri*o similis, sed alis anticis supra infra cellulam ad marginem internum sicut posticis nitidissime cæruleis.

Hab. PANAMA, Calobre, Veraguas (*Arcé*).—COLOMBIA; UPPER AMAZONS.

A close ally of *T. atri*us: scarcely differing from it on the underside, but the blue colouring on the upper surface enters the primaries from the inner margin to the cell, thus rendering it easily distinguishable, for in the allied species the primaries are wholly destitute of blue.

We have four male examples from the State of Panama, one of which we figure. These do not differ materially from Para examples collected by Mr. Bates.

28. T. SIMÆTHIS section.

168. *Thecla simæthis*.

Papilio simæthis, Drury, Ill. Ex. Ent. i. t. 1. f. 3¹.

Bythis simaethis, Hübn. Zutr. ex. Schmett. iii. p. 11, ff. 423, 424².

Alis supra purpureis, costa et margine externo fuscis: subtus pallide viridibus, linea communi discali ferruginea extrorsum late albo limbata; posticis margine externo late albo dense ferrugineo atomato et introrsum eodem colore limbato, maculis quibusdam ad marginem internum argenteis, lobulo anali ferrugineo.

♀ alis fuscis ad basin vix cærulescentibus, margine externo posticarum et maculis tribus ad angulum analem submarginalibus nigricantibus.

Hab. MEXICO, Tres Marias Islands (*Forrer*), Cordova (*Rümel*i), Paso de San Juan (*W. Schaus*); GUATEMALA, Central valleys (*F. D. G. & O. S.*); PANAMA, Calobre (*Arcé*).—SOUTH AMERICA from WESTERN PERU; VENEZUELA and AMAZONS VALLEY to GUIANA and SOUTH BRAZIL; ANTILLES, St. Christopher Island¹.

This is a widely ranging species, though nowhere common. We have no specimens
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from the West-Indian Islands, whence Drury's type was said to have come, but our continental examples agree with his figure. The well-defined discal line of the under-side and the silvery marks render *T. simæthis* easy of recognition.

169. *Thecla telea*.

Thecla telea, Hew. Descr. Lyc. p. 4¹; Ill. Diurn. Lep. p. 143, t. 57. ff. 350, 351².

Alis læte violaceis, marginibus externis anguste nigris: subtus viridibus, linea communi discali ferruginea extrorsum albida in anticis omnino in posticis plerumque evanescente, plaga magna ad angulum posticarum analem, lineis argenteis utrinque notata.

♀ alis fuscis, anticis ad basin, posticis dimidio abdominali, cærulescentibus.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Polochic valley, San Gerónimo (*F. D. G. & O. S.*), Calderas (*Champion*); COSTA RICA (*Mus. Staudinger*).—COLOMBIA; PERU; AMAZONS VALLEY^{1 2}.

The typical locality of *T. telea* is the Amazons valley, whence we have specimens of both sexes. Guatemalan examples differ slightly from these in having the upper surface of the wings of a darker violet tint; but we notice some variation in this respect, the forehead between the eyes of the northern specimens is blacker and without rufous tint. Examples from Callao depart still further in being larger, more rufous on the head, and having a rufous patch on the base of the costa, and the ciliæ also rufous. A large series is required to show the value of these differences, and for the present we place them under the name of *T. telea*. Three male specimens are all that we have seen from our country, where it must evidently be a scarce species.

170. *Thecla gabina*, sp. n. (Tab. LVII. figg. 20, 21 ♂.)

Alis purpureis, costa et margine externo nigricanti-fuscis; posticis margine ipso nigro, ciliis ad angulum analem albis: subtus gramineis, linea discali communi rufescente ad marginem posticarum internum nigra extrorsum undique viridi-albido limbata, lobulo anali nigro, macula inter ramos medianos quoque nigra introrsum rufo limbata, margine externo usque ad filamentum nigro ciliis hucusque albis, deinde ad angulum apicalem cum ciliis cervinis.

♀ alis fusco-nigris purpureo vix suffusis, margine externo posticarum nigro introrsum albido limbato.

Hab. MEXICO, Jalapa (*W. Schaus*); PANAMA, David (*Champion*).—AMAZONS VALLEY.

We have several male specimens of this species, the only ones we have seen of the *T. badeta* group, the other species being known from female examples only. Mr. Champion captured one female, with which one of Mr. Bates's examples from the Amazons valley, which he had placed with *T. badeta*, agrees so closely, that we consider that it belongs here. A male specimen from David is figured.

171. *Thecla myron*, sp. n.

♀ *T. gabinae* similis, anticis ad basin, posticis medialiter cæruleo suffusis; posticis linea submarginali albida nulla: subtus angulo anali introrsum rufo limbato ut videtur diversa.

Hab. COSTA RICA, Cache (*Rogers*); PANAMA, Chiriqui (*Ribbe*).

We have two examples of this species before us, both of them females, which are so different from our other specimens of that sex of species of the *T. badeta* group, that we have thought it necessary to describe them, though we have some doubts as to their ultimate status, which cannot be determined till a larger series has been examined, and males of all these closely allied forms obtained.

172. **Thecla lampetia**, sp. n.

T. gabinæ quoque similis, sed alis anticis cellula ad basin et infra eam ad angulum analem et posticis dimidio margini interno proximo nitide cæruleis: subtus linea discali magis nigricante, maculis rubris submarginalibus introrsum nigro limbatis, margine ipso fere omnino nigro introrsum albo marginato.

Hab. COSTA RICA, Cache (*Rogers*).

We have a single female specimen which does not agree with the female of either of the preceding species. All these three species are allied to *T. badeta* of Hewitson, of which we have one of the types, but they all have more or less purple or blue on the upper surface of the wings, those of *T. badeta* being of a uniform brown, and there are other differences on the underside making it improbable that they all belong to one variable species.

29. T. MILTO section.

173. **Thecla milto**, sp. n. (Tab. LVII. figg. 22, 23 ♀.)

♀ alis fuscis ad basin vix cærulescentibus; posticis area interna squamis cæruleis frequenter aspersis: subtus gilvis, linea communi discali introrsum fusca extrorsum alba in posticis inter venas regulariter fracta, fascia lata submarginali alba ad angulos analem et apicalem introrsum late rubra in medio fusca, margine ipso fusco introrsum albo anguste marginato, ciliis albidis, lobulo anali et macula inter ramos medianos nigris.

♂ nobis ignotus.

Hab. PANAMA, Chiriqui (*Trötsch*).

Dr. Staudinger has lent us the only specimen of this species that we have seen—a female from the district of Chiriqui, which we figure. It is manifestly allied to *T. teucra* of the Amazons valley, from which, however, it differs in the upperside being tinged with blue, the secondaries being sprinkled with pale-blue scales; beneath, the band common to both wings is nearer to the margin and much less strongly impressed on the primaries.

30. T. CERATA section.

174. **Thecla cerata**.

Thecla cerata, Hew. Ill. Diurn. Lep. p. 191, t. 76. ff. 607, 608¹.

Alis plumbeo-cæruleis; anticis costa et marginibus externis angustissime nigris, ciliis fuscis: subtus glauco-fuscis, linea communi discali nigra extrorsum albo limbata ad venam medianam fracta deinde ad marginem internum profunde lunulata et introrsum rufo limbata, linea altera nigra ultra eam quoque lunulata ad venam medianam, extra eam inter ramos medianos ruberrimis, punctis duobus submarginalibus nigris, lobulo anali nigro introrsum linea rubra juxta eum nigra albo atomata, margine externo nigro introrsum albo limbato.

Hab. GUATEMALA, Cubilguitz (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*Arcé, Ribbe*), Emperador Station (*J. J. Walker*).—SOUTH AMERICA, Colombia, Amazons valley¹, and Guiana.

The slaty colour of the upper surface of this species separates it from several near allies found in the same country, the similar pattern of the underside being very apparent. It appears to be a scarce insect in the northern parts of Central America, as we have only one specimen from Guatemala and one from Nicaragua. In the State of Panama it is more abundant.

175. **Thecla pisis**, sp. n. (Tab. LVII. figg. 24, 25 ♂.)

T. ceratæ similis quoad alarum paginam inferiorem, sed multo magis ochraceis, supra saturate purpureo-nigris unicoloribus.

Hab. GUATEMALA, Teleman (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*).

The much darker wings readily separate this species from *T. cerata*, which it resembles on the underside, though the wings are of a more ochraceous hue. The species most nearly allied to it probably is *T. anthora* of the Amazons valley, but the wings have a more purple gloss on them, and the underside is less silvery. In British Guiana we find yet another form of this group, of which we have several specimens taken by Mr. Whitely on the Carimang river in the interior of that country; these we describe below under the name of *T. puppius**. The oldest known form of this group is *T. vesulus* of Cramer, a species with brown upper surface to the wings and with the end of the discal band beneath of the secondaries broken off into a distinct spot which lies nearer the apical angle.

We figure a Bugaba male of *T. pisis*.

176. **Thecla trebula**.

Thecla trebula, Hew. Ill. Diurn. Lep. p. 146, t. 57. ff. 363, 364¹.

Alis nigricanti-fuscis; posticis medialiter nitide cæruleis, ciliis sordide albis: subtus nitide ochraceis, fascia communi discali nigra extrorsum albo limbata in posticis ad venam medianam fracta a ramo suo secundo usque ad marginem internum profunde arcuata, linea nigra extrorsum juxta eum quoque arcuata, inter venam medianam et ramo suo primo, plaga magna coccinea punctis duobus nigris, lobulo anali nigro, plaga juxta eum fusca albo atomata, supra eam macula magna coccinea, margine externo nigro introrsum albo limbato.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*).—COLOMBIA; AMAZONS VALLEY¹.

* **Thecla puppius**, sp. n.

T. pisidi affinis, sed alis anticis brevioribus et magis acutis: subtus omnino fuliginoso-fuscis ochraceo haud tinctis distinguenda.

Hab. Guiana Brit. (*Whitely*).

Mus. nostr.

We have the types of this species before us, taken by Mr. Bates at Ega; with these our Central-American specimens agree very closely, but the males are rather larger, the blue on the secondaries somewhat brighter, and the spots near the anal angle hardly traceable. As the type of the male is in a somewhat rubbed condition, we do not consider these slight differences of much consequence. The arrangement of the spots on the underside is like that of *T. cerata* and *T. pisis*. *T. trebula* differs in the ochreous tint of the wings beneath and the very different style of coloration of the wings above.

Our Colombian examples were taken by Mr. Wheeler at Mutiscua, in the State of Santander, at an elevation of 4000 feet above the sea.

31. T. CELMUS section.

177. *Thecla celmus*.

Papilio celmus, Cram. Pap. Ex. t. 55. G, H¹.

Alis fusco-nigris; anticis infra cellulam ad marginem internum, et posticis (præter marginem externum) cyaneis, harum angulo anali nigro introrsum albo limbato: subtus cretaceo-albis, linea communi discali nigra introrsum rubro limbata in posticis in maculas fracta, macula nigra infra venam costalem, linea submarginali nigra in posticis lunulata, puncto nigro inter ramos medianos introrsum rubro cincto, margine externo ad angulum analem nigro.

♀ alis omnino fuscis; posticis linea submarginali alba.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Telemán, San Isidro (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe*).—SOUTH AMERICA, Venezuela, Amazons valley, Guiana¹, and South-east Brazil.

This small but well-marked species has an exceedingly wide range over a large portion of Tropical America. In Guatemala it occurs on both sides of the cordillera in the forest-region.

178. *Thecla lollia*, sp. n. (Tab. LVII. figg. 26, 27 ♂.)

Alis saturate cæruleis; anticis costa, apice late et margine externo nigricantibus; posticis margine externo anguste nigricante, ciliis albis: subtus griseo-albidis, linea communi discali fusca extrorsum alba introrsum ferruginea limbata in posticis valde sinuata, linea altera submarginali fusca albo introrsum limbata in posticis lunulata, lobulo anali nigro introrsum ferrugineo, macula juxta eum nigra albo dense atomata, puncto nigro inter ramos medianos introrsum late ferrugineo cincto, margine externo nigricante introrsum albo limbato.

♀ mari similis, sed colore alarum cæruleo multo magis obscuro; subtus linea submarginali fusca minus obvia.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); COSTA RICA, Irazu (*Rogers*).

The female from Guatemala, described above, we associate with some hesitation with the Costa-Rican male, but it agrees better with it than with either of the two closely-allied forms described below; at the same time its position must remain somewhat doubtful till more specimens of both sexes from the same locality are examined. The Costan-Rica male is figured.

179. **Thecla iambe**, sp. n. (Tab. LVII. figg. 28, 29 ♂.)

T. lolliæ similis, sed alis supra multo minus cæruleis, hoc colore cellulam haud occupante, area mediana posticarum tantum cærulea, margine externo ipso nigro ad angulum analem introrsum albo limbato: subtus posticis lineola nigra ad cellulæ finem.

♀ adhuc nobis ignota.

Hab. COSTA RICA, San Francisco (*Rogers*).

We have only a single specimen of this species, which, from the small extent of the blue on the upper surface, is easily distinguished from its near ally *T. lolliæ*.

180. **Thecla lucagus**, sp. n. (Tab. LVII. figg. 30, 31 ♂.)

T. lolliæ quoque similis, sed colore cæruleo anticarum usque ad costam extendente: subtus linea submarginali fusca margini propiore, colore ferrugineo lobulo anali proximo et inter ramos medianos multo minus extenso.

Hab. MEXICO, Jalapa (*Höge, W. Schaus*).

Of this, likewise, we have but a single male specimen, but have seen a second in Mr. Schaus's collection. This species differs from the two preceding in having the blue on the upper surface of the primaries spreading to the costa.

181. **Thecla carnica**.

Thecla carnica, Hew. Ill. Diurn. Lep. p. 143, t. 57. f. 352¹.

Alis læte violaceis, margine externo nigro: subtus griseis, linea communi discali nigra extrorsum albo introrsum rubro marginata in posticis in maculas tres et lineam angulatam fracta, maculis his introrsum nigro quoque marginatis, linea altera submarginali fusca albo utrinque marginata in posticis lunulata, lobulo anali ferrugineo puncto nigro, macula quoque ferruginea inter ramos medianos puncto nigro.

♀ alis fuscis introrsum obscure violaceo lavatis, aliter alis maris similibus.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*); PANAMA, Bugaba (*Champion*), Calobre (*Arcé*).—AMAZONS VALLEY¹.

The types of *T. carnica* which we possess are in a very poor condition, but we believe we are right in associating with them two males and a female from our country. They all agree in the deep violet tint of the upper surface, but the northern specimens are larger and the wings rather broader.

32. T. TERA section*.

182. **Thecla tera**.

Thecla tera, Hew. Ill. Diurn. Lep. p. 211, t. 84. ff. 714, 715¹.

Alis cæruleis; anticis costa et dimidio apicali fusco-nigricantibus, stigmate spurio ad cellulæ finem; posticis margine externo anguste nigricanti-fusco, ciliis albidis: subtus cretaceo-albis, linea communi discali fusca introrsum ferrugineo limbata; in anticis continua, in posticis in maculas sex et lineam angulatam ad

* In this and the two following sections there is a black spot at the end of the cell of the males which somewhat resembles a stigma, but it is more diffused, and does not apparently influence the neurulation; to distinguish it we term it a false stigma.

marginem internum fracta, linea altera lunulata submarginali fusca, et lineola ad cellularum fines introrsum fusca extrorsum alba, lobulo anali puncto nigro introrsum ferrugineo notato, macula nigra juxta eum albo dense atomata, puncto nigro inter ramos medianos introrsum ferrugineo tincto.

Hab. GUATEMALA, San Gerónimo (*Champion*); COSTA RICA, Irazu, Rio Sucio (*Rogers*); PANAMA, Chiriqui (*Ribbe*¹), Volcan de Chiriqui (*Champion*).

Dr. Staudinger has kindly lent us his type of this species, which has enabled us to identify with certainty the series we possess from various parts of Central America. The species, so far as we know, is somewhat isolated in its alliances.

33. T. HESYCHIA section.

183. *Thecla hesychia*, sp. n. (Tab. LVII. figg. 32, 33 ♂.)

Alis violaceis, marginibus externis anguste nigricantibus; anticis stigmatе spurio nigro ad cellulæ finem: subtus griseis, linea communi discali fusca extrorsum albo limbata in posticis introrsum umbrino limbata ad venam medianam fracta hinc ad marginem internum angulata, lineola ad cellulæ finem albida utrinque fusco limbata, lobulo anali et puncto inter ramos medianos nigris introrsum umbrino-rubro limbatis, inter eos macula nigra albo atomata.

Hab. COSTA RICA, Rio Sucio (*Rogers*).

We have only a single example of this species, taken by Mr. Rogers in Costa Rica. It is allied to *T. alda* of the Amazons valley, but the wings are not only of a purer violet, but there are no spots at the base of the secondaries on the underside.

184. *Thecla hicetas*, sp. n. (Tab. LVII. figg. 34, 35 ♂.)

T. hesychiæ affinis, sed alis supra saturatioribus: subtus anticis linea fusca cellulam transeunte, altera albida utrinque fusco limbata ad finem ejus; posticis maculis tribus basin versus, una in cellulam, altera infra eam, tertia infra venam costalem.

Hab. MEXICO, Cordova (*Rümeli*), Jalapa (*W. Schaus*).

This species is also allied to *T. alda*, but may be distinguished by the presence of a band across the cell of the primaries beneath. The middle segment of the palpi is fuscous instead of white. We figure a Cordova specimen.

185. *Thecla pætus*, sp. n. (Tab. LVIII. figg. 1, 2 ♂.)

T. hesychiæ quoque affinis, sed alis magis purpureis: subtus linea discali fusca multo latiore umbrino vix limbata, linea altera communi interiore quoque fusca, anticarum apice et angulum analem et posticarum limbo externo albicantibus fusco nebulosis.

Hab. PANAMA, Chiriqui (*Ribbe*).

The inner band crossing both wings, together with the light apex of the primaries, and also the light outer portion of the secondaries, render this species easily distinguishable. The colour of the wings above is very nearly that of *T. alda*; but besides the differences in the pattern below, the middle segment of the palpi is dark brown instead of white. We have only seen two specimens of this species, both taken by Herr Ribbe at Chiriqui.

34. T. PHRUTUS section.

186. **Thecla phrutus.**

Bythis phrutus, Geyer in Hübn. Zutr. ex. Schmett. iv. p. 26, ff. 703, 704¹.

Thecla phrutus, Hew. Ill. Diurn. Lep. p. 141, t. 56. ff. 340, 341, 342².

Alis fusco-nigricantibus; posticis dimidio margini interno proximo cæruleo, maculis duabus ad angulum analem nigricantibus, macula nigra ad cellulæ anticarum finem: subtus pallide fuscis, linea discali communi rubida extrorsum albo limbata in posticis valde irregulari, extra eam alis pallidioribus dense rubido atomatis, linea altera quoque irregulari rubida basin propiore, marginibus externis ipsis rubidis introrsum albido limbatis, anticarum apice albido linea submarginali lunulata rubida.

Hab. MEXICO, Cordova (*Rümeli*), Paso de San Juan (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*); PANAMA, Chiriqui (*Trötsch*).—AMAZONS VALLEY².

Judging from the few specimens we possess of this pretty species, it would appear that it is subject to a good deal of variation, and this was Hewitson's opinion; but it is open to question whether his figures 340, 341, really represent the same species. Our examples correspond best with the former.

187. **Thecla inoa**, sp. n. (Tab. LVIII. figg. 18, 19 ♂.)

Alis fuscis; anticis margine costali ad basin fulva stigmatе spurio ad cellulæ finem; posticis macula indistincta fusca inter ramos medianos: subtus anticis griseis ad apicem albidis, maculis discalibus rubidis, eis inter ramos medianos nigro circumcinctis, macula altera obsoleta ad cellulæ finem, margine externo anguste rubido, ciliis albis; posticis albis, bitriente basali maculis magnis rubidis notatis, margine externo quoque rubido, ciliis albis, macula parva inter ramos medianos et lobulo anali rubidis, illa puncto nigro, lineis duabus lunularibus discalibus margini externo subparallelis fuscis: antennis albo annulatis; fronte rubido.

♀ adhuc ignota.

Hab. MEXICO, Jalapa (*W. Schaus*).

This species belongs to the same section as *T. phrutus*, but may be known by the absence of blue on the upper surface of the secondaries, and in wanting the fine rufous mottling of the marginal area beneath.

188. **Thecla zilda.**

Thecla zilda, Hew. Ill. Diurn. Lep. p. 141, t. 56. ff. 343, 344¹.

Alis brunneis; anticis stigmatе spurio nigro ad cellulæ finem; posticis limbo interno albido, angulo anali cærulescente, lobulo anali rufo: subtus fuscis; anticis angulo apicali et margine externo, posticis ad basin et dimidio distali glaucescentibus, linea discali communi nigricante extrorsum albo introrsum rubro limbata, in posticis ad costam macula quadrata formante inter venam medianam et marginem internum bene angulata, lobulo anali et macula inter ramos medianos nigris introrsum rubro cinctis, maculis duabus ad basin nigris, una infra venam costalem altera ad marginem internum.

Hab. PANAMA, Chiriqui (*Trötsch*).—SOUTH AMERICA, Amazons and Brazil¹.

A single male specimen in Dr. Staudinger's collection, from Chiriqui, agrees with one of the same sex from the Tapajos river named *T. zilda* by Mr. Bates.

35. T. CORONTA section.

189. **Thecla coronta.**

Thecla coronta, Hew. Ill. Diurn. Lep. p. 157, t. 62. ff. 422, 423¹.

Alis fusco-nigris; anticis ad basin marginis interni et posticis præter costam et marginem externum late cæruleis, lobulo anali rufo, maculis duabus juxta eum nigricantibus, margine externo ipso nigro ad angulum analem cæruleo limbato: subtus griseis, linea communi discali nigra albo extrorsum introrsum coccineo limbata, macula ad cellulæ anticarum finem aliisque tribus basin posticarum versus quoque coccineis, linea submarginali fusca lunulata albido limbata; posticis ultra linea discali albicantioribus marginem versus nigro atomatis; lobulo anali et macula inter ramos medianos nigris introrsum rubro cinctis, inter eos macula altera nigra albo atomata, marginibus externis ipsis coccineis.

♀ mari similis, sed colore alarum cæruleo pallidiore et minus extenso.

Hab. MEXICO, Cordova (*Höge*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley, San Gerónimo (*F. D. G. & O. S.*).—GUIANA¹.

Hewitson's type specimen of this species, from Cayenne, agrees with our Guatemalan examples, but we have not seen it from any intermediate locality. The red margin of the wings beneath is a characteristic feature of this species, rendering it easy to be distinguished, except from the next following, which has other points of difference.

190. **Thecla mævia**, sp. n. (Tab. LVIII. figg. 3, 4 ♂.)

T. corontæ similis, sed multo minor colore cæruleo magis glauco in posticis magis extenso ad angulum apicalem fere extendente.

Hab. MEXICO, Acapulco (*J. J. Walker*), Cordova (*Rümeli*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*); COSTA RICA, Punta Arenas (*J. J. Walker*).

This is a miniature form of *T. coronta*, the markings of the underside being very similar, but the blue colouring of the wings above, especially on the hind wings, is more extensive and of a greyer tint. We figure a San-Gerónimo specimen.

191. **Thecla scopas**, sp. n. (Tab. LVIII. fig. 5 ♂.)

Alis fuscis; anticis a cellula ad marginem internum et posticis fere omnino albis cæruleo vix tinctis; posticis margine externo anguste et maculis tribus submarginalibus ad angulum analem fuscis: subtus cretaceo-albis, fascia maculosa communi discali valde irregulari pallide fulva utrinque nigricante limbata, maculis quoque fulvidis sparsis ad alarum bases, fascia lunulari submarginali et margine ipso fuscis, ciliis albis; posticis macula fulva inter ramos medianos puncto nigro, lobulo anali nigro introrsum fulvo cincto.

Hab. MEXICO, Jalapa (*W. Schaus*); NICARAGUA, Chontales (*Janson*).

The upper surface of the wings of this species recalls *T. una*, Hew., but the character of the spots beneath shows its distinctness. We have as yet only seen two specimens of *T. scopas*, one in Mr. Schaus's collection and one in our own. The latter was taken at Chontales by the late E. M. Janson. We have figured the former, being in better condition.

36. T. MATHEWI section.

192. *Thecla mathewi*.

Thecla mathewi, Hew. Ent. Monthly Mag. xi. p. 106¹; Ill. Diurn. Lep. p. 196, t. 78. ff. 629, 630².

Alis fusco-nigris; anticis margine interno usque ad cellulam, posticis (præter costam et marginem externum anguste) glauco-cæruleis, harum lobulo anali rufo: subtus fuscis, linea communi discali fusca extrorsum albido introrsum late umbrino limbata, in posticis ad marginem internum angulata; anticis ad marginem externum fusco et griseo nebulosis; posticis lobulo anali nigro introrsum rubido notato, juxta eum macula fusca albo atomata, macula nigra inter ramos medianos introrsum rubido cincta, margine externo nigro introrsum albo limbato, ciliis griseis.

♀ alis fuscis, posticis medialiter vix glauco-cæruleo lavatis.

Hab. MEXICO (*G. Mathew*^{1 2}), Cordova (*Rümeli*), Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Chiriqui (*Trötsch*).

This species is very similar to *T. cleon* of Fabricius on the upper surface, but beneath the bands of the latter on the secondaries are much more irregular and broken. *T. mathewi* was obtained by Mr. Mathew, R.N., on the west coast of Mexico, and we now trace it through Guatemala as far as the State of Panama; it is, however, nowhere common. We have a very close ally of *T. mathewi* from Manaure, in Northern Colombia, where a specimen was obtained by Mr. F. Simons*.

193. *Thecla chonida*.

Thecla chonida, Hew. Ill. Diurn. Lep. p. 197, t. 78. ff. 635, 636¹.

Alis fuscis ad basin grisescentibus; posticis dimidio distali griseo venis fuscis diviso, maculis submarginalibus fuscis, ea inter ramos medianos nigro introrsum fulvo limbata, margine externo ad angulum analem nigro, ciliis albis: subtus griseis, linea discali communi angustissime nigra introrsum fulvo extrorsum albo limbata in posticis bifracta et leviter sinuata, macula inter ramos medianos et lobulo anali nigris introrsum fulvo cinctis, macula inter eos nigra albo irrorata, marginibus externis nigris introrsum albo limbatis.

Hab. MEXICO (*G. Mathew*¹), Jalapa (*W. Schaus*).

The type of this species is a female, and the only specimen we have seen, with the exception of one recently submitted to us by Mr. Schaus. The species is probably allied to *T. mathewi*, but the discal band on the secondaries is much straighter and less abruptly bent towards the inner margin.

194. *Thecla leda*.

Thecla leda, W. H. Edwards, Papilio, ii. p. 23¹.

Alis fuscis; anticis marginis interni dimidio basali, et posticis præter aream apicalem glauco-cæruleis; posticis maculis duabus ad angulum analem fuscis, stigmatе spurio ad cellulæ anticarum finem: subtus griseis,

* *Thecla sesara*, sp. n.

T. mathewi similis quoad picturam alarum paginæ inferioris, sed supra anticis omnino fusco-nigricantibus, area interna haud glauco-cæruleo notata; posticis maculis tribus submarginalibus fuscis ad angulum analem.

Hab. COLOMBIA, Manaure (*F. Simons*).

Mus. nostr.

linea communi discali extrorsum alba introrsum fulva in posticis undulata ad marginem internum angulata, linea obscura altera submarginali utrinque albo limbata, marginibus externis ipsis nigris introrsum albo limbatis, lobulo anali nigro introrsum fulvo cincto, macula juxta eum quoque nigra albo dense atomata, puncto inter ramos medianos nigro introrsum fulvo cincto.

♀ nobis ignota.

Hab. NORTH AMERICA, Arizona¹.—MEXICO, Northern Sonora (*Morrison*).

We possess a single male specimen of this species from Sonora thus named by the late Mr. Morrison, and agreeing with Mr. Edwards's description. The types were taken at Prescott in Arizona by Mr. Doll, near our northern frontier.

37. T. AZIA section.

195. *Thecla azia*.

Thecla azia, Hew. Ill. Diurn. Lep. p. 144, t. 57. ff. 357, 358¹.

Alis fusco-brunneis; anticis ad cellulæ finem obscurioribus: subtus griseis, linea communi discali nigra extrorsum albo introrsum late rufo marginata in posticis valde undulata, lobulo anali nigro introrsum rufo notato, macula juxta eum nigra albo atomata, puncto nigro inter ramos medianos introrsum rufo late circumcincta, marginibus externis ipsis rufis ad angulum posticarum analem nigris.

♀ mari similis, sed dimidio posticarum margini interno proximo albido, punctis nigris ad angulum analem.

Hab. MEXICO¹, Milpas in Durango (*Forrer*), Cordova (*Rümel*), Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo, Calderas, Dueñas (*Champion*), Polochic valley (*F. D. G. & O. S.*); COSTA RICA, Cache (*Rogers*).—SOUTH AMERICA, Amazons valley.

We have several female specimens of a *Thecla* from Mr. Bates's collection from the Amazons valley, and another from Maranhão of the same sex; these all agree with females from Central America, whence we have also obtained males which we believe to belong to Hewitson's *Thecla azia* described from a single Mexican example. The species is thus a widely distributed one, but apparently nowhere common. The rufous outer margin of *T. azia* is characteristic, rendering it easily recognized.

196. *Thecla rufo-fusca*.

Thecla rufo-fusca, Hew. Ill. Diurn. Lep. p. 196, t. 78. ff. 627, 628.

Alis fusco-brunneis; posticis macula inter ramos medianos nigricante introrsum rufo cincta, margine externo nigro albido introrsum limbato, ciliis albidis: subtus fuscis, linea communi discali fusca extrorsum albido introrsum rubido limbata undique lunulata, lobulo anali et macula inter ramos medianos nigris introrsum rubido cinctis, marginibus externis anguste rufis.

♀ mari similis, alis posticis ad angulum analem pallidioribus, macula inter ramos medianos majore et introrsum rufo latius cincto.

Hab. GUATEMALA, San Gerónimo (*F. D. G. & O. S.*, *Champion*), Choctum (*F. D. G. & O. S.*).—SOUTH AMERICA, E. Brazil.

We have one of Hewitson's types of this species before us and many specimens from Pernambuco collected by the late W. A. Forbes; with these a small series of Guatemalan

examples agree so closely that we have no doubt they belong to the same species. We have no record of it from any other part of our country.

197. **Thecla syllis**, sp. n. (Tab. LVIII. figg. 6, 7 ♂.)

Alis supra fusco-brunneis; posticis ad basin vix cæruleo lavatis, lobulo anali medialiter rubro: subtus pallidioribus, margine costali plerumque rubro, linea communi discali fusca extrorsum albido introrsum rubro limbata in anticis obsoleta in posticis ad venam medianam fracta ad marginem internum angulata, lobulo anali nigro, introrsum linea ochracea nigro introrsum marginata, macula coccinea inter ramos medianos introrsum ochraceo limbata et puncto nigro, macula juxta eam nigra albo atomata.

Hab. MEXICO, Presidio (*Forrer*), Cordova (*Rümeli*), Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo (*Champion*), central valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*).

This species is allied to *T. ceromia* of the Amazons valley, but differs in the secondaries having some blue scales on the upper surface and beneath the discal line is broadly edged with red; the red spot between the median branches has an inner ochreous edge, which colour also extends to the anal angle. We have figured a San Gerónimo specimen.

38. T. MELINUS section.

198. **Thecla melinus**.

Strymon melinus, Hübn. Zutr. ex. Schmett. i. p. 22, ff. 121, 122¹.

Thecla hyperici, Boisd. & Lec. Lép. Am. Sept. p. 90, t. 28².

Thecla favonius, Boisd. & Lec. Lép. Am. Sept. p. 95, t. 30³.

Alis fuscis; anticis plaga obscure ad cellulæ finem; posticis macula nigra inter ramos medianos, lunula rubra supra eam, margine externo nigro ad angulum analem introrsum albo limbato, ciliis albis: subtus griseofuscis, linea communi discali maculosa nigra extrorsum albo introrsum rubro limbata, linea quoque communi submarginali nigra; posticis angulo anali rubro, lobulo anali et macula inter ramos medianos nigra, inter eos macula nigra albo atomata, margine externo nigro albo introrsum limbato.

♀ mari similis.

Hab. NORTH AMERICA, Eastern States (Georgia and Florida¹), California and Texas.—MEXICO, Northern Sonora (*Morrison*), Milpas and Ventanas in Durango (*Forrer*); GUATEMALA, Polochic valley and San Gerónimo (*F. D. G. & O. S.*), Pantaleon (*Champion*); PANAMA, Chiriqui, Calobre (*Arcé*).—VENEZUELA.

Several names have been proposed for this species, which has a wide range in North America, and lepidopterists of the United States are at variance as to whether more than one species should be recognized, Mr. W. H. Edwards retaining several, while Mr. Strecker unites them all under Hübner's name *Strymon melinus*. It is evident that the insects are subject to considerable variation, and we much doubt whether it will be ultimately possible to recognize more than one. Our Mexican specimens agree with those of farther north, whilst those of Guatemala and thence southwards to Panama and Venezuela differ in having the discal band closer to the outer margin.

We are unwilling to do more than notice this feature, seeing how subject to variation this insect is.

39. T. BEBRYCIA section.

199. *Thecla bebrycia*.

Thecla bebrycia, Hew. Descr. Lyc. p. 13¹; Ill. Diurn. Lep. p. 119, t. 50. ff. 258, 259².

Alis fuscis; anticis macula nigra ad cellulæ finem; posticis macula nigra inter ramos medianos introrsum rubro cincta, lobulo anali quoque rubro notato, margine externo nigro, ciliis albidis: subtus pallide fuscis, linea communi discali extrorsum alba introrsum rubra in posticis perfracta, angulo anali rubro, lobulo nigro, macula nigra inter ramos medianos introrsum late rubro cincta, margine nigro introrsum albo limbato.

♀ nobis ignota.

Hab. MEXICO (*mus. Hewitson*^{1 2}); GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

We have a single specimen of this species from the Polochic valley which agrees with Hewitson's type from Mexico. The species appears to be fairly distinct, the black spot in the cell together with the red edging of the black spot between the median branches of the secondaries being distinguishing features from all but the following species, which, however, has the wings marked with blue.

200. *Thecla serapio*, sp. n. (Tab. LVIII. figg. 8, 9 ♂.)

T. bebryciæ similis, sed supra anticis lineis duabus margini interno parallelis cæruleis; posticis area discali quoque cæruleo atomata: subtus linea discali medialiter distincte nigra, linea submarginali maculosa fusca utrinque albo limbata.

Hab. MEXICO, Jalapa (*W. Schaus*); PANAMA, David (*Champion*), Chiriqui (*Arcé*).

Evidently an ally of *T. bebrycia*, having a similar black spot at the end of the cell of the primaries, and the red-margined black spot between the median branches of the secondaries as well as the general resemblance of the discal line beneath. The blue colouring on the upper surface of both wings serves to distinguish it. Mr. Schaus's Mexican specimens agree closely with the Panama types. We figure a David male.

40. T. BASALIDES section.

201. *Thecla basalides*.

Tmolus basalides, Geyer in Hübn. Zutr. ex. Schmett. v. p. 42, ff. 977, 978¹.

Alis fuscis; anticis infra venam medianam, posticis in dimidio interiore nonnunquam cæruleo striatis, stigmatе spurio nigro ad cellulæ anticarum finem; posticis maculis duabus ad angulum analem nigris, ea inter ramos medianos rufo introrsum notata, lobulo anali quoque rufo: subtus griseis, linea communi discali nigra extrorsum albo introrsum rufo limbata in posticis in maculas fracta, margine rubro quoque introrsum nigro limbato, maculis duabus basin propioribus una in cellula altera infra venam costalem nigris interne rufis et extrorsum albo cinctis, lobulo anali nigro introrsum rubro notato, macula nigra inter ramos medianos introrsum rubro cincta.

♀ alis brunneis, aliter alis maris similibus.

Hab. MEXICO (*Boucard*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley, Pacific

coast (*F. D. G. & O. S.*), Chiacam, Paraiso, San Isidro (*Champion*), Coban (*Von Türckheim*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Cache (*Rogers*); PANAMA, David (*Champion*), Chiriqui (*Arcé, Ribbe*), Veraguas, Calobre (*Arcé*), Lion Hill (*M. Leannan*).—SOUTH AMERICA, Colombia to Amazons valley and South-east Brazil ¹.

There is a good deal of variation in the extent of the blue in the wings on the upper-side of this species, and, so far as we can see, its amount has no relation to locality, and it varies from a few scales to well-defined streaks. Beneath, too, the size and shape of the spots forming the discal band of the secondaries varies in different individuals. We have but a single female specimen from Mexico; but in Guatemala it is not an uncommon species in the low-lying lands on both sides of the cordillera, and it seems equally abundant throughout the rest of Central America.

41. T. ALBATA section.

202. *Thecla albata*.

Thecla albata, Feld. Reise d. Nov. Lep. p. 261, t. 32. ff. 17, 18 ¹.

Alis fuscis; anticis plaga magna ad angulum analem et posticis præter basin et maculas duas ad angulum analem pure albis; anticis stigmatæ spurio nigro ad cellulæ finem, margine interno ad basin pallide cæruleo atomato: subtus ut supra, sed pallidioribus, linea communi discali valde sinuata fusca, lunulis variis submarginalibus fuscis, lobulo anali et macula inter ramos medianos nigris, macula inter eos nigra albo atomata.

♀ mari similis.

Hab. PANAMA, Panama city (*Ribbe*), Taboga Island (*J. J. Walker*).—COLOMBIA ¹; VENEZUELA ¹.

This species was described by Felder from Venezuelan specimens, which are now before us, and it has also been taken in Colombia by Mr. Wheeler; thence it passes into our country as far north as the Panama railway.

203. *Thecla sedecia*.

Thecla sedecia, Hew. Ent. Monthly Mag. xi. p. 105 ¹; Ill. Diurn. Lep. p. 198, t. 78. ff. 637, 638 ².

T. albatae persimilis, sed supra anticis plaga ad angulum analem minore colore cæruleo quoque ad basin vix ullo; posticis margine externo ipso nigro: subtus anticis linea discali rectiore, lineola ad fines cellularum albida, lobulo anali et macula inter ramos medianos posticarum introrsum rufo latius cinctis.

Hab. MEXICO ¹ (*G. Mathew* ²), Milpas, Presidio (*Forrer*), Cordova (*Rümeli*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*).

T. sedecia was described from Mexican specimens obtained by Mr. Mathew, probably on the west coast, whence we also have received examples through Mr. Forrer. Our only Guatemalan specimens are from the Polochic valley, as Mr. Champion did not come across it.

42. T. YOJOA section.

204. *Thecla yojoa*.

Thecla yojoa, Reak. Proc. Ac. Phil. 1866, p. 339¹; Hew. Ill. Diurn. Lep. p. 158².

Thecla daraba, Hew. Ill. Diurn. Lep. p. 105, t. 36. ff. 8, 9³.

Thecla beræa, Hew. Descr. Lyc. p. 14⁴.

Alis fuscis, stigmatе spurio nigro ad cellulæ anticarum finem; posticis maculis duabus nigris ad angulum analem, lobulo anali rufo: subtus griseo-fuscis, linea communi discali fusca extrorsum albo limbata ad marginem posticarum internum introrsum rufo marginata, lineola alba ad cellularum fines; posticis fascia albida per cellulam et ultra lineam discalem albicantibus, ad marginem extrorsum fusco nebulosis, lobulo anali et macula inter ramos medianos nigris introrsum rufo limbatis.

♀ mari similis, sed alis pallidioribus; posticis limbo externo nigro introrsum albo limbato, ciliis albidis.

Hab. MEXICO^{1 2 3}, Cordova (*Rümelі*), Jalapa (*W. Schaus*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S., Champion*), Panima (*Champion*), Coban (*Von Türckheim*); NICARAGUA, Chontales (*Belt*); PANAMA, David (*Champion*), Chiriqui (*Arcé, Ribbe*), Calobre (*Arcé*).—AMAZONS VALLEY³.

The discal line on the secondaries of this species varies to some extent, being straighter in some specimens, and more undulating in others, but we are not able to make any separation on this account. *T. yojoa* is not an uncommon species in Guatemala, especially at San Gerónimo in Vera Paz at an elevation of about 3000 feet above the sea.

205. *Thecla alea*, sp. n. (Tab. LVIII. figg. 10, 11 ♂.)

T. yojoa similis, sed posticis in margine externo cærulescentibus, hoc colore maculis nigris submarginalibus includente, margine ipso nigro, ciliis albis: subtus lineola alba ad cellulæ anticarum finem nulla, macula inter ramos medianos posticarum cervino (nec rubro) introrsum cincta.

Hab. MEXICO, Tres Marias Islands (*Forrer*), Jalapa (*W. Schaus*).

We have a single specimen of this species from Mr. Forrer's collection from the Tres Marias Islands, and have seen another in Mr. Schaus's collection. This species is no doubt allied to *T. yojoa*, but the points of difference indicated above certainly suggest its specific distinction.

206. *Thecla mulucha*.

Thecla mulucha, Hew. Ill. Diurn. Lep. p. 89, t. 38. f. 117¹; p. 159, t. 62. f. 428².

Thecla crossæa, Hew. Ill. Diurn. Lep. p. 158, t. 62. f. 427³.

Tmolus invisus, Butl. & Druce, Cist. Ent. i. p. 108⁴; P. Z. S. 1874, p. 355⁵; Butl. Lep. Ex. p. 160, t. 57. f. 12⁶.

Alis fuscis unicoloribus; anticis plaga nigra ad cellulæ finem; posticis maculis tribus ad angulum analem nigricantibus, ciliis albis: subtus pallidioribus; anticis ad apicem posticis fascia lata transversa per cellulam et plaga magna ad medium marginis externi albidis, lineola ad cellulæ anticarum finem alba, linea discali communi fusca extrorsum albo limbata undique lunulata, lobulo anali et punctis inter ramos medianos nigris illo introrsum fulvo cincto.

♀ mari similis, alis posticis ad angulum analem pallidioribus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten* ^{4 5 6}), San Francisco (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe*), Taboga Isl. (*J. J. Walker*).—VENEZUELA¹; AMAZONS VALLEY.

T. mulucha is clearly allied to *T. yojoa*, but may readily be distinguished by the much more tortuous discal band of the secondaries, which consists of a series of lunules, one between each vein. It varies in the intensity of the markings of the under surface, and this is probably the reason that it has been described more than once. It is widely spread in Central America, but does not appear to extend into Mexico. In South America it reaches Para, and has therefore a much wider range than the allied species *T. yojoa*.

43. T. EURYTULUS section.

207. *Thecla eurytulus*.

Tmolus eurytulus, Hübn. Samml. ex. Schmett. ii. t. 90¹.

Thecla salona, Hew. Descr. Lyc. p. 31²; Ill. Diurn. Lep. p. 159, t. 63. ff. 429, 430³.

Thecla istapa, Reak. Pr. Ac. Phil. 1866, p. 339⁴.

Alis fuscis; anticis stigmatē spurio nigro ad cellulæ finem, maculis duabus ad angulum analem posticarum nigris, margine nigro, ciliis albidis: subtus fuscis, fascia communi discali fusca extrorsum albo limbata, lineis duabus submarginalibus lunulatis albis; posticis lineola ad cellulæ finem nigricante, maculis duabus ad basin albido cinctis una intra cellulam altera infra venam costalem, lobulo anali et macula magna inter ramos medianos nigris introrsum cervino limbatis, intra eos macula fusca albo atomato.

♀ mari similis, alis posticis plerumque plumbeo suffusis, maculis nigris submarginalibus magis obviis.

Hab. MEXICO, Presidio (*Forrer*), Acapulco (*J. J. Walker*), Cordova (*Rümeli*), Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Dueñas, San Gerónimo (*Champion*); COSTA RICA, Cache (*Rogers*); PANAMA, Bugaba, Veraguas (*Arcé*), Chiriqui (*Ribbe*).—SOUTH AMERICA, Guiana, Amazons valley^{2 3}, E. Brazil.

This is an abundant species over a very wide area of Tropical America, and we are quite unable to distinguish Mexican and Guatemalan examples from others found in the Amazons valley and Pernambuco in Eastern Brazil. These all, we believe, should bear Hübner's name *T. eurytulus*. *T. istapa*, Reakirt, appears to have been based upon a female of this species.

*h*⁶. Wings grey beneath; secondaries without marginal filament.

44. T. CESTRI section.

208. *Thecla cestri*. (Tab. LVIII. figg. 12, 13 ♂.)

Thecla cestri, Reak. Pr. Ac. Phil. 1866, p. 338¹.

Alis nigricanti-brunneis; anticis stigmatē spurio nigro ad cellulæ finem; posticis macula submarginali inter ramos medianos nigra, ciliis albis; subtus brunneo-fuscis ad marginem externum dense albo atomatis, linea communi discali fusca albido extrorsum limbata undique lunulata; posticis maculis ad basin nigris interne fuscis albido cinctis, macula nigra inter ramos medianos.

♀ mari similis, alis posticis a basi ad angulum analem cæruleo lavatis, maculis tribus submarginalibus albicantibus.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Dueñas, Sinanja, San Gerónimo (*Champion*); COSTA RICA, Irazu (*Rogers*).

This species is allied to *T. davara* of Hewitson, which was described from an unknown locality. It differs in several minor points: the discal band of the primaries is more broken into lunules, and the spots near the base of the hind wing are independent, and are not confluent with the discal band. We figure a male from Dueñas.

209. *Thecla agra*.

Thecla agra, Hew. Descr. Lyc. p. 30¹; Ill. Diurn. Lep. p. 147, t. 58. ff. 369, 370².

Alis nigricanti-fuscis; anticis stigmatē spurio nigro ad cellulæ finem; posticis interne cæruleis, maculis submarginalibus fuscis: subtus fuscis, linea communi discali fusca albido extrorsum limbata in posticis vix obvia; anticis linea submarginali albida; posticis linea albida longitudinali, macula magna supra eum ad angulum apicalem fusco-brunnea, altera infra eam basali, macula costali brunnea albo cincta, ciliis sordide albis.

♀ mari similis, sed supra alis pallidioribus: subtus linea discali magis distincta, linea longitudinali vix obvia.

Hab. MEXICO, Jalapa (*W. Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*Champion*), Coban (*Von Türckheim*); COSTA RICA, Cache (*Rogers*); PANAMA, Volcan de Chiriqui (*Arcé, Ribbe, Champion*), Calobre (*Arcé*), Taboga Isl. (*G. Mathew*).—SOUTH AMERICA, Colombia to the Amazons valley^{1 2}, Jamaica.

Except that the Central-American specimens are somewhat larger, we observe no difference between them and Amazons examples, whence Hewitson's type was derived. The distribution of the markings of the underside renders this species easy to recognize. It has no near allies.

Since the above enumeration of the species of *Thecla* was written Mr. W. Schaus has brought for our inspection the extensive series of Butterflies taken by himself in the environs of Jalapa in the State of Vera Cruz. The species of *Thecla* number no less than eighty-eight, of which we were at once able to determine eighty-one. A considerable number of these eighty-one species are enumerated in the foregoing pages. Others, of which our account had already been published, will, where necessary, be mentioned in our Supplement. There remain seven species for which we have been unable to find names: three of these we think desirable to describe here, and insert figures of them on our 58th Plate; and one (*T. inoa*) is already inserted in its place (*anteà*, p. 88). Of the remaining three, more specimens are required before we can determine them satisfactorily—one is allied to that most difficult species *T. beon*, another, of which there is only a female, is allied to *T. celmus*, and the third is much broken, but belongs to a beautiful species unknown to us, but apparently allied to *T. m-album*.

Thecla hecate, sp. n. (Tab. LVIII. figg. 15, 16 ♂, 17 ♀.)

Alis cyaneis, anticis saturatioribus, omnibus (anticis ad apicem late) nigro extrorsum marginatis, stigmate fusco ad cellulæ finem; posticis bicaudatis, ea ad rami mediani secundi finem brevissima: subtus fuscis; anticis linea lunulari discali saturate fusca extrorsum albo limbata; posticis lineis duabus discalibus lunularibus fuscis interiore extrorsum exteriori introrsum albo limbatis, ambabus ad costam interruptis, lobulo anali nigro macula bipartita juxta eum rubra, altera inter ramos medianos puncto nigro, area inter eas nigra cærulescente atomata, margine externo ad angulum analem nigro introrsum albo limbato ciliis quoque albis: abdominis apice fulva.

♀ alis cæruleo-canescens, anticis ad apicem fuscis: subtus pallidioribus quam in mari; posticis striolis duabus albidis ad cellulæ finem.

Hab. MEXICO, Jalapa (*W. Schaus*).

This species comes near *T. vibidia* (*anteà*, p. 44), but besides having the wings of a deeper blue, the alar stigma is more clearly shown. The primaries beneath are crossed by a discal line, and the inner of the two bands of the secondaries is broken near the costa, and the portion next the costal nervure is placed nearer the base of the wing and is comma-shaped. The corresponding portion of the outer band is ranged almost in a line with the inner band, but the true relationship of these fragments is shown by the white margins being placed inside or outside.

Thecla semones, sp. n. (Tab. LVIII. figg. 20, 21 ♂.)

Alis cyaneo-plumbeis fere unicoloribus, anticis ad apicem vix obscurioribus: subtus viridibus unicoloribus immaculatis, ciliis albidis; anticis abbreviatis; posticis rotundatis ecaudatis: antennis et pedibus fusco-nigris albo annulatis; fronte nigra.

♀ adhuc ignota.

Hab. MEXICO, Jalapa (*W. Schaus*).

A curious little species apparently allied to *Thecla ares* (*anteà*, p. 61) and to *T. biblia*, Hew., of the Amazons valley. It differs from both in the dark lead-colour of the upper surface of the wings and their immaculate under surface.

Mr. Schaus only took one specimen, which is not in very good condition, and has lost the tips of the antennæ, their basal portions, however, show white rings.

Thecla schausi, sp. n. (Tab. LVIII. figg. 22, 23 ♂.)

Alis saturate cyaneis, extrorsum late nigro limbatis; anticarum costa ad basin quoque nigra; subtus fuliginoso-griseis, venis latis nigris divisis, anticis cellula et area infra eam cyaneis, ad apicem plaga pallida venis divisa, macula coccinea ad costæ basin; posticis plaga pallida supra cellulam ad costam extendente venam costalem divisa, macula quoque coccinea ad costæ basin: corpore supra cyaneo, abdomine infra fusco; antennis nigris infra albo maculatis, clava pallida, palporum segmento medio extrorsum chalybeo-cyaneo; posticis rotundatis, ecaudatis, angulo anali vix prominente.

♀ adhuc ignota.

Hab. MEXICO, Jalapa (*W. Schaus*).

Mr. Schaus's collection contains the single male specimen described above. The species is a very peculiar one, and, so far as we know, has only two allies, one of which

is represented in our collection by a single male specimen taken by Mr. Bates in the valley of the Upper Amazons, but which has remained undescribed until now *. Of the other Dr. Staudinger has just sent us a single female specimen from Chiriqui, which we here describe as *T. insignis*.

These three species will probably be separated generically from *Thecla* proper whenever the subdivision of the genus can be satisfactorily undertaken. Before this can be done, specimens must be properly dissected and their structure accurately examined.

***Thecla insignis*, sp. n.**

♀ alis fuscis unicoloribus: subtus anticis fuscis, plaga apicali tripartita flavida, macula ad basin costæ aurantia; posticis flavidis venis latis fuscis divisis, plaga magna ad angulum apicalem altera ad fines ramorum medianorum fuscis, plaga magna ad basin aurantia.

♂ adhuc ignotus.

Hab. PANAMA, Chiriqui (*Trötsch*).

Dr. Staudinger has just sent us, in time for the insertion of its description here, a female of this curious *Thecla* which is allied to *T. schausi* and *T. miranda*.

B. Front legs of male with a complete five-jointed tarsus and with claws.

THECLOPSIS, gen. nov.

The insects we include in this genus have all the appearance of *Thecla*; but in preparing a male specimen of *Thecla lebena* of Hewitson, we found that not only is the cell of the primaries of peculiar form, but the front legs are unlike those of any *Thecla*, and indeed of any member of the Lycænidæ which we have examined. Taking *T. lebena* as the type of our new genus *Theclopsis*, we find that two species of our region, viz. *T. demea* (Hew.) and one now described as *T. cæus*, have the cell of the primaries formed exactly as in *T. lebena*; but we have not been able, for want of specimens, to examine the front legs, so we include both species in this genus from the structure of the cell alone.

T. lebena has, as in all the American *Theclæ*, two subcostal branches, both emitted from the subcostal widely apart, and the second some way before the end of the cell.

* ***Thecla miranda*, sp. n.**

T. schausi affinis, ejusdem forma angulo posticarum anali magis prominente, alis supra magis purpurascens: subtus plaga lactescenti-alba ad anticarum apicem; posticis macula magna trifida subapicali ejusdem coloris, cellula ad basin et margine interno eodem modo picturatis: abdomine subtus albo.

Hab. Amazons sup. (*H. W. Bates*).

Mus. nostr.

All three discocellulars are present, and all are long, the lower (somewhat atrophied) the longest, the upper longer than the middle. The cell is thus unusually long, and extends far towards the apex of the wing. There is a large stigmatic patch of closely-felted scales over the region of the first median branch, and the median nervure is considerably bent inwards between its branches to receive it. The palpi have a long slender terminal joint; the middle joint is thickened slightly in the centre, the basal joint is shorter than the middle one and considerably dilated. The femur and tibia of the front legs are subequal, the former being somewhat swollen and the latter distended towards the distal end and bearing two prominent spines beneath. The tarsus consists of five joints, the first being equal to the other four together; all except the terminal joint are thickly set with short strong spines on the under surface, with a somewhat prominent pair at the extremity of each joint; the terminal fifth joint bears a pair of well-developed claws and a pulvillus, but paronychiae are apparently wanting. The secondary sexual organs consist of a well-developed tegumen with two strong overlapping hooks, as in *Thecla* generally; the harpagones are long slender rods; the penis is long, extending backwards into the body for more than half its length.

We have no female of *T. lebena*.

The structure of the front legs in this genus is very remarkable, the fusion of the joints of the tarsus and the elimination of the claws usual in *Lycænidae*, and indeed in *Nymphalidae* and *Erycinidae* as well, has in this instance never been carried out. On the other hand, the development of a spiny under surface to all the joints except the last is carried much further than in the fused tarsus usual in *Lycænidae*.

1. *Theclopsis demea*.

Thecla demea, Hew. Ill. Diurn. Lep. p. 180, t. 70. ff. 533, 534¹.

Alis lætissime cyaneis, anticis costa ad basin apice et margine externo nigris; stigmatibus nullo; posticis margine externo anguste nigro, area abdominali anguste nigra: subtus fuscis viridescente suffusis, linea communi discali introrsum nigricanti-fusca, extrorsum alba, in posticis fracta ad marginem internum angulata, lobulo anali nigro, introrsum rubro atomato, macula rubra inter ramos medianos puncto nigro, inter eos macula fusca albo atomata.

♀ nobis ignota.

Hab. NICARAGUA, Chontales (*Belt*¹).—COLOMBIA.

Though differing in many respects, the broad elongated cells of this and the following species show a relationship to *Thecla lebena* of Hewitson, from which, however, they may be at once distinguished by the much greater extension of blue on the upper surface and the absence of the large black spot on the primaries beneath. We have a male specimen which formed part of Belt's Nicaragua collection from Central America, and two of the same sex from the interior of Colombia, where they were obtained by Mr. Wheeler.

2. **Theclopsis cæus**, sp. n. (Tab. LVIII. figg. 24, 25 ♂.)

T. demecæ valde affinis, sed anticis stigmatibus ad cellulæ finem parvo et subtus area interna viridescente micantibus differt.

Hab. PANAMA, Calobre (*Arcé*).

This species is described from a single male specimen. It is closely allied to *Theclopsis demecæ*, having the same tint and distribution of blue on the upper surface; but it differs in having a small somewhat crescent-shaped brand at the end of the cell, and beneath in having a large patch of shining scales over the middle of the primaries.

II. Subcostal nervure of primaries with three branches.

CHRYSOPHANUS.

Chrysophanus, Hübn. Verz. bek. Schmett. p. 72.

The single species we place provisionally in this genus will probably have to be removed from it when the *Lycænidæ* are investigated at large and a comprehensive classification undertaken.

The neururation of the wings is very like that of *C. virginienensis*, with which we have compared it, and the outline of the wings not dissimilar, the anal angle of the secondaries being more produced; the second median branch carries a moderate filament. The primaries have no upper discocellular, but the middle discocellular meets the subcostal nearly halfway between the junction of the second subcostal branch and the upper radial with the subcostal respectively. The palpi have a long slender terminal joint, the middle joint being much dilated; the femur of the front legs is somewhat dilated in the middle, and the tibia towards the distal end; the tarsus is slightly decurved towards the end, and the under surface sparsely covered with spines. The hooks of the tegumen are abruptly recurved at their points; the harpagones are large elongated lobes with a serrate inner edge.

The single species here treated of is found on the mountains of Guatemala. It has none of the brilliant coppery colour usual in *Chrysophanus*, and the pattern of the under surface is peculiar.

1. **Chrysophanus? pyrrhias**, sp. n. (Tab. LVIII. figg. 26, 27 ♂.)

Alis purpureis, marginibus externis nigris, in posticis lunulis submarginalibus rufis includente, lineola submarginali violacea: subtus rosaceo-fuscis, anticis area discali ochracea, lineis tribus communibus transversis in anticis nigricantibus, in posticis brunneis, una submarginali, altera discali in posticis nigro extrorsum limbata, tertia per cellulas, anticis lineola per cellulæ finem cellula posticarum quoque lineola brunnea terminata.

Hab. GUATEMALA, Volcan de Fuego (*F. D. G. & O. S., Champion*), San Gerónimo (*F. D. G. & O. S.*), Chilasco, Cubulco, Quiche Mountains, Dueñas (*Champion*).

So far as we know, this pretty species is restricted to the highlands of Guatemala. We used to find it not unfrequently on the road skirting the flank of the volcano between Dueñas and Calderas, and Mr. Champion also found it in the same place at an altitude above the sea of 6000 to 7000 feet; he also took specimens on the ridge above Cubulco, the mountains above Quiche, and on the high ridges of Chilasco in Vera Paz. It flies near the ground, and is frequently found settled on pig's dung.

A Chilasco specimen is figured.

LYCÆNA.

Lycæna, Fabricius in Ill. Mag. f. Ins. vi. p. 285 (partim).

Thirteen species of *Lycæna* occur within our limits, but of these four are probably only found along our frontier in the northern States of Mexico. Four other northern species also enter our fauna—*L. marina* reaching as far south as Guatemala, *L. exilis* Venezuela, and *L. isola* and *L. comyntas* Costa Rica. Three southern species of wide range extend to Mexico, viz. *L. hanno*, *L. cassius*, and *L. tulliola*. There remain two that have not yet been detected beyond our limits, viz. *L. zachæina*, which is found from Central Mexico to Costa Rica, and *L. gozora* (a form of *L. argiolus*), having much the same range, but spreading a little further south into the State of Panama.

It will thus be seen that *Lycæna* is not nearly so strongly represented in Mexico and Central America as it is in countries lying further to the northward. As we proceed further south the paucity of the species becomes still more apparent; but there are several peculiar Andean species and others in Chili which do not come within our range.

Lycæna has been divided into many genera, not only in the Old World but also in America; but their value requires careful testing and a comparison instituted between New- and Old-World forms, so that the whole may be brought into something like a harmonious system. Whether this had best be done under a large or small number of generic names remains to be seen; and as we cannot here undertake the solution of the question, we place all the species that concern us under the comprehensive title of *Lycæna*.

From our dissections we note the following points which seem worthy of record:—

In *L. exilis* the first subcostal branch becomes merged in the costal nervure. In *L. comyntas* this branch coalesces with the costal for part of its length, and then diverges again towards the margin. In all the other species we have examined this branch remains free throughout its length.

Regarding the secondary male organs, our preparations hardly give satisfactory results; being made from dried specimens, the parts are so displaced as to make it difficult to trace their outline. So far as we can see, *L. exilis* is most divergent in this respect; *L. acmon* and *L. isola* are somewhat alike, and resemble the Old-World *L. corydon*;

L. cassius and *L. marina* are allied, but different; nor are *L. comyntas* and *L. gozora* far removed.

1. *Lycæna sagittigera*.

Lycæna sagittigera, Feld. Reise Nov. Lep. p. 281, t. 35. ff. 20, 21¹.

Padrotes sagittigera, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 116.

Alis pallide virescenti-cæruleis, margine externo fusco, ciliis albis fusco intermixtis: subtus pallide fuscis, anticis macula cellulari, altera ad cellulæ finem aliisque septem discalibus nigricanti-fuscis albo cinctis, lunulis submarginalibus fuscis, introrsum late, extrorsum anguste albo limbatis; posticis dimidio cellulæ distali albo, macula nigra notato, maculis nigris discalibus albo cinctis, cum lunulis submarginalibus nigris albo conjunctis, lunulis his inter ramos medianos et ad angulum analem extrorsum cervino limbatis.

Hab. NORTH AMERICA, Southern California and Colorado².—MEXICO, Sonora (*Lorquin*¹).

This species was originally described from Sonoran specimens, and we have an example labelled Sonora which was formerly in Mr. Bates's collection. It is better known from California, whence we have several examples from various sources. Though described in 1865 and well figured by Dr. Felder, *L. sagittigera* has since received no less than five synonyms, which are all mentioned in Mr. Strecker's Catalogue.

2. *Lycæna sonorensis*.

Lycæna sonorensis, Feld. Reise Nov. Lep. p. 281, t. 35. ff. 3, 4¹.

Philotes sonorensis, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 116².

Lycæna regia, Boisd. Lep. Cal. p. 46³.

Alis pallide metallico cærulescentibus, margine externo anguste nigro, ciliis albis fusco intermixtis; anticis lineola ad cellulæ finem maculisque discalibus nigris, plaga magna duplici ad medium marginis externi aurantia: subtus fuscis albo atomatis, triente externo pallidiore; anticis macula ad cellulæ finem aliisque sex discalibus nigris albo cinctis, macula aurantia bipartita sicut in pagina superiore, posticis dimidio costali maculis nigris albo cinctis obsolete notato.

♀ alis fuscescentioribus, maculis nigris submarginalibus quoque ornatis, posticis plaga magna aurantia ad medium marginis externi maculisque tribus nigris discalibus quoque notatis.

Hab. NORTH AMERICA, California².—MEXICO, Sonora (*Lorquin*¹).

A beautiful and distinct species, with no near allies. The specimens described by Dr. Felder were obtained by Lorquin in Sonora, and we have an example formerly in Mr. Bates's collection purporting to be from that country; the species, however, is best known as an inhabitant of California. Lorquin's specimens, described by Boisduval as *L. regia*, were taken at Los Angeles.

3. *Lycæna acmon*.

Lycæna acmon, Westw. in Doubl. & Hew. Gen. Diurn. Lep. p. 294, t. 76. f. 2¹.

Rusticus acmon, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 122².

Alis violaceo-cæruleis, marginibus externis fuscis, ciliis albis; posticis maculis submarginalibus fuscis, introrsum litura fulva limbatis: subtus pallide griseis, dimidio distali maculis distinctis nigris albo cinctis

frequenter notatis; posticis maculis quinque submarginalibus nigris argenteo atomatis, introrsum lunulis fulvis cinctis, his quoque nigro introrsum marginatis.

♀ alis fuscis, medialiter cæruleo atomatis, aliter alis maris similibus.

Hab. NORTH AMERICA, Western States, California¹.—MEXICO, Northern Sonora (*Morrison*).

This species is only known to us within our region from specimens obtained by Morrison in Sonora, close to our north-western frontier. According to Mr. Strecker, the larva feeds on *Hosackia*, a genus of leguminous plants mostly natives of western North America and Mexico.

4. *Lycæna isola*. (Tab. LVIII. figg. 33, 34 ♂, 35 ♀.)

Lycæna isola, Reak. Proc. Ac. Phil. 1866, p. 332¹; Strecker, Cat. N.-Am. Butt. p. 93².

Hemiargus isola, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 123³.

Lampides zachæina, Butl. & Druce, Cist. Ent. i. p. 104 (partim)⁴.

Alis violaceo-cæruleis, marginibus externis fuscis, ciliis albis; posticis macula ad angulum analem, altera inter ramos medianos nigris: subtus griseo-fuscis, lineolis duabus ad cellulæ finem et duabus submarginalibus albidis, maculis sex conspicuis discalibus nigris albo cinctis; posticis fascia discali atomosa albida, maculis duabus subcostalibus, altera cellulari fuscis albo cinctis, lineis duabus ad cellulæ finem, lunulis submarginalibus annulisque variis discalibus albidis, macula nigra inter ramos medianos et duabus ad angulum analem omnibus argenteo ornatis.

♀ anticis dimidio apicali fuscis, posticis ad costam quoque late fuscis: subtus alis maris similibus, maculis omnibus magis distinctis.

Hab. NORTH AMERICA, Kansas, Texas², Arizona². — MEXICO, Northern Sonora (*Morrison*), Ventanas and Ciudad in Durango (*Forrer*), Jalapa (*Höge*, *W. Schaus*), Vera Cruz (*W. H. Edwards*¹); GUATEMALA, central valleys (*F. D. G. & O. S.*), San Gerónimo (*Champion*); COSTA RICA (*Van Patten*⁴), San Francisco, Cache, Irazu (*Rogers*).

The conspicuous band of black spots on the primaries beneath renders this species easily distinguished from all others within our region.

L. isola was described by Reakirt from specimens obtained by Mr. W. H. Edwards near Vera Cruz in Mexico, and it has since been traced over a wide area from Kansas in the north to Costa Rica in the south; but throughout our region it seems confined to the more elevated districts lying at between 4000 and 5000 feet above the level of the sea and upwards.

A male from Cordova and a female from Jalapa are figured.

5. *Lycæna gozora*.

Lycæna gozora, Boisd. Lep. Guat. p. 17¹.

Alis lætissime cæruleis, margine externo in anticis late, in posticis angustissime, nigris; anticis plaga discali albida; posticis medialiter ad angulum apicalem quoque albis, ciliis albis: subtus albis, punctis submarginalibus et linea lunulata submarginali fuscis, punctis discalibus, in anticis linea arcuata, in posticis linea valde irregulari positus, nigricantibus, lineola ad cellularum fines fusca; posticis puncto subcostali altera ad cellulæ medium nigris.

♀ alis anticis fuscis, medialiter albis cæruleo ad basin suffusis; posticis albis, costa late, margine externo anguste et maculis submarginalibus fusco-nigricantibus, aliter alis maris similibus.

Hab. MEXICO¹, Milpas (*Forrer*), Jalapa (*Höge, W. Schaus*), Oaxaca (*Fenechio*); GUATEMALA, Los Altos, Dueñas (*F. D. G. & O. S.*), Dueñas, Guatemala city, Cerro Zunil, San Gerónimo, Purula, Chiacam, Sabo (*Champion*); COSTA RICA, Cache (*Rogers*); PANAMA, Chiriqui (*Ribbe, Arcé*), Bugaba (*Champion*).

L. gozora is the Mexican and Central-American form of *L. pseudargiolus*, which it closely resembles in the markings of the underside; but it differs in the tint of the blue of the upper surface, which is considerably darker and more violet, moreover the male has a distinct whitish discal patch: in specimens from Costa Rica and the State of Panama this patch is not nearly so clearly shown nor so constant.

In Guatemala *L. gozora* is very common in the highlands, especially in the neighbourhood of Dueñas, where numbers may be seen on a sunny morning in the rainy season flying round wet places on the roadside.

6. *Lycæna piasus*.

Lycæna piasus, Boisd. Ann. Soc. Ent. Fr. 1852, p. 299¹; Strecker, Cat. Butt. N. Am. p. 95².

Cyaniris piasus, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 114³.

Præcedenti similis, sed alis supra unicoloribus, albo haud notatis: subtus maculis omnibus fuscis indistinctis.

Hab. NORTH AMERICA, Oregon², California^{1 2}, Arizona.—MEXICO, Northern Sonora (*Morrison*).

This is another species of the *L. pseudargiolus* group, which occurs just on our northern frontier in Sonora. It may be distinguished both from *L. gozora* and from *L. pseudargiolus* itself by the darker tone of the blue of both wings. In this respect it resembles *L. argiolus*, but the wings are greyer beneath without any green tint.

7. *Lycæna cassius*.

Papilio cassius, Cram. Pap. Ex. t. 23. ff. C, D¹.

Alis violaceo-cæruleis, marginibus externis anguste fuscis, ciliis albis: subtus albis, anticis undique frequenter pallide fusco transvittatis; posticis quoque fusco maculatis et lineatis, macula magna inter ramos medianos nigra introrsum annulo argenteo-cæruleo notata, extrorsum cervino cincta, macula altera ad angulum analem eodem modo picta sed minore.

♀ alis fuscis, medialiter albis cæruleo ad basin lavatis; anticis maculis discalibus fuscis; posticis margine externo fusco, annulis quinque albis ornatis: subtus alis maris similibus.

Hab. MEXICO, Tres Marias Islands (*Forrer*); GUATEMALA, Polochic, Motagua, and Chisoy valleys (*F. D. G. & O. S.*), Guatemala city, Dueñas, San Gerónimo (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), San Francisco, Cache (*Rogers*); PANAMA, Chiriqui, Veraguas (*Arcé*), Peña Blanca (*Champion*).—SOUTH AMERICA, Colombia and Guiana¹ to South Brazil; ANTILLES, Cuba, Jamaica, Haiti, Dominica.

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L. cassius is an exceedingly common species throughout the whole of Tropical America, from the Tres Marias Islands in the north to South Brazil, including also many of the West Indian Islands. Throughout this wide area some variation is to be expected; this affects the amount of white on the secondaries of the males, and to some extent the markings of the females generally; but we are quite unable to associate any particular variation to any restricted area, for in cases where we have a large series from any one locality the extremes of variation are represented. We draw these conclusions from the examination of about 120 specimens.

In Central America the range in altitude of this species is considerable, for we find it at the sea-level in the Tres Marias Islands, and as high as 5000 feet near the city of Guatemala.

8. *Lycæna marina*.

Lycæna marina, Reak. Proc. Ac. Phil. 1868, p. 87¹.

Leptotes marina, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 124².

♂ mari præcedentis similis, sed alis supra magis violaceis: subtus lineis fuscis transversis latioribus.

♀ haud albo notata.

Hab. NORTH AMERICA, California, Arizona.—MEXICO, Northern Sonora (*Morrison*), Milpas (*Forrer*), Jalapa (*W. Schaus*), Orizaba (*fide Reakirt*¹), Vera Cruz (*W. H. Edwards*¹); GUATEMALA, Dueñas (*F. D. G. & O. S., Champion*), San Gerónimo (*F. D. G. & O. S.*).

A close ally of *L. cassius*, from which it appears to be distinguishable in both sexes by the darker colour of the upper surface of the wings, in which there is no tendency to become white as in the allied species. There are slight differences also on the underside. *L. marina* appears to be common along our north-western frontier, both in Arizona and Sonora; thence it spreads through Mexico to the highlands of Guatemala, where both Mr. Champion and we ourselves found it an elevation of nearly 5000 feet at Dueñas, and as low as 3000 feet at San Gerónimo in Vera Paz; in both these places *L. cassius* is also found.

We also notice a difference in the secondary male organs, which make it certain that *L. cassius* and *L. marina* are distinct species. The harpagones in the former have simple rounded ends with long hairs, and on the inner edge a strong prominent tooth; those of the latter have a serrate extremity, and there is no tooth on the inner edge; moreover, the projection or hook on either side of the tegumen is strongly dentate on its lower edge.

9. *Lycæna hanno*.

Papilio hanno, Stoll, Suppl. Cram. Ex. Pap. p. 170, t. 39. ff. 2, 2 B¹.

Rusticus adolescens hanno, Hübn. Samml. ex. Schmett. ii. t. 98².

Alis purpureo-cæruleis, marginibus externis fusco nigricantibus, ciliis albis: subtus fusco-griseis, marginibus

externis fuscis, linea ad cellularum fines utrinque albo limbata; anticis linea transversa discali maculosa, lunulis submarginalibus maculisque ultra eas fuscis, omnibus utrinque albo marginatis; posticis macula cellulari, altera infra eam et duabus subcostalibus nigris albo cinctis, maculis variis ultra cellulam lunulisque submarginalibus fuscis, utrinque albo limbatis, macula magna nigra inter ramos medianos cervino cincto et extrorsum argenteo atomata.

♀ alis fusco brunneis ad basin cæruleo atomatis, aliter alis maris similibus.

Hab. NORTH AMERICA, Florida.—MEXICO, Mazatlan, Ventanas (*Forrer*); COSTA RICA (*Van Patten*), Cache, Irazu, San Francisco (*Rogers*); PANAMA, Chiriqui, Veraguas (*Arcé*), Tolé, David, San Feliz (*Champion*), Lion-Hill Station (*M. Leannan*), Paraiso Station (*Hughes*), Panama city (*Ribbe, Buchan-Hepburn*).—SOUTH AMERICA, Colombia to South Brazil; ANTILLES, Cuba, Jamaica, Dominica.

We have a large series of specimens from various parts of Tropical America, which we have no hesitation in referring to *Papilio hanno* of Stoll, nor do we see how examples from Florida can be specifically separated; the species occurs also in several of the West Indian Islands. Regarding the North-American insect, we are not sure under what name it passes, but we believe it is the same as that indicated in Mr. Strecker's catalogue as *L. antibubastus* of Hübner.

In Central America the only species it can be confused with is *L. zachæina*, which it resembles very closely; it has, however, only a single submarginal black spot on the underside of the secondaries between the median branches, whereas in the allied species there are two in this region.

L. hanno is a very common insect in many parts of Central America.

10. *Lycæna zachæina*. (Tab. LVIII. figg. 36, 37 ♂, 38 ♀.)

Lampides zachæina, Butl. & Druce, Cist. Ent. i. p. 104¹ (partim); P. Z. S. 1874, p. 354²; Butl. Lep. Ex. p. 157, t. 57. f. 1³.

Præcedenti similis, sed posticis subtus maculis duabus submarginalibus nigris inter venam medianam et ramos suos.

Hab. MEXICO, Mazatlan (*G. Mathew*), Ventanas (*Forrer*), Jalapa (*W. Schaus*), Cordova (*Rümeli*), Oaxaca (*Fenochio*); GUATEMALA, Polochic and Motagua valleys (*F. D. G. & O. S.*), Chacoj, San Gerónimo, and Zapote (*Champion*), Dueñas (*F. D. G. & O. S., Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*^{1 2 3}).

This is a close ally of *L. hanno*, differing solely in having two black submarginal spots on the underside of the secondaries instead of one. The specimen described by Messrs. Butler and Druce as the female of this species has really nothing to do with it, but must be referred to *L. isola* of Reakirt, as is clearly shown by the marked types before us.

This insect has a wide range in Central America from Mexico to Costa Rica, being especially common in Guatemala and Nicaragua, where it appears entirely to sup-

plant *L. hanno*. In the State of Durango, as well as in Costa Rica, both species are found.

A male from San Gerónimo and a female from Chacoj in Guatemala are figured.

11. *Lycæna comyntas*.

Polyomatus comyntas, Godt. Enc. Méth. ix. p. 660¹.

Everes comyntas, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 114².

Alis violaceo-cæruleis, marginibus externis nigris, ciliis albis; posticis maculis indistinctis submarginalibus nigris: subtus cretaceo-albis, lineola nigra utrinque albo limbata ad cellularum fines; anticis maculis sex in linea discali positis albo cinctis, lunulis fuscis submarginalibus; posticis macula subcostali, altera in cellula aliisque in linea discali valde irregulari positis nigris albo cinctis, lunulis submarginalibus nigris et extra eas ad marginem externum maculis fuscis, iis inter ramos medianos nigris argenteo-cæruleo ornatis et introrsum fulvo cinctis.

♀ alis fuscis, ad basin cæruleo lavatis; posticis maculis fuscis ad marginem externum cæruleo cinctis, iis inter ramos medianos introrsum cervino limbatis: subtus alis maris similibus.

Hab. NORTH AMERICA¹, from Canada southwards.—MEXICO, Cordova (*Rümel*), Jalapa (*Höge*, *W. Schaus*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic and Motagua valleys (*F. D. G. & O. S.*), Tamahu, Cahabon, Purula, San Gerónimo, Guatemala city, Dueñas, Zapote (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*, *Janson*); COSTA RICA, San Francisco (*Rogers*).

This species enjoys a wide range in North America, chiefly in the eastern and central States, its western limits extending to the Rocky Mountains. We find it again in Southern Mexico and throughout Guatemala to the Pacific coast and thence southwards to Costa Rica. We notice no material difference between specimens from different parts of this wide area, except that females from the north have the wings of a uniform dark fuscous brown, whereas in those from the south the base is extensively suffused with blue.

In Guatemala *L. comyntas* is an inhabitant of the mountain-region, and is chiefly found at an elevation of 3000 feet and upwards.

According to Mr. Strecker, the larva feeds on *Phaseolus perennis* and *Lespedeza capitata*, leguminous plants both represented in our country by allied species.

12. *Lycæna tulliola*, sp. n. (Tab. LVIII. figg. 28, 29 ♂.)

Alis fuscis, medialiter obscure cæruleis, ciliis albis: subtus pallide griseis; anticis macula ad cellulæ finem, altera duplici cellulari aliisque octo discalibus, costæ et margini externo subparallelis, nigris, omnibus nigro cinctis, maculis sagittiformibus submarginalibus albo quoque cinctis; posticis maculis decem nigris albo cinctis cellulam circumcingentibus, duabus ad medium cellulæ altera ad finem ejus quoque albo cinctis, maculis sagittiformibus fuscis submarginalibus albo cinctis.

♀ mari similis, sed colore cæruleo paginæ alarum superioris magis restricto.

Hab. MEXICO, Milpas, Ventanas (*Forrer*), Cordova (*Rümel*), Jalapa (*W. Schaus*); GUATEMALA, San Gerónimo, Dueñas, Zapote (*Champion*).—SOUTH AMERICA, Venezuela to Eastern and Southern Brazil.

This species somewhat resembles *L. comyntas*, but, besides having longer and narrower wings, it is destitute of the submarginal black spots beneath. Mexican and Central-American examples agree closely with others from Venezuela and Brazil; but we notice that the double black spot within the cell in the primaries beneath, conspicuous in northern examples, is almost always absent in those from the south. One of our Venezuelan specimens has a single spot.

We have applied a MS. name of Dr. Moritz, attached to some Venezuelan specimens formerly in the Kaden collection.

A male from San Gerónimo, Guatemala, is figured.

13. ***Lycæna exilis*.** (Tab. LVIII. figg. 30, 31 ♂, 32 ♀.)

Lycæna exilis, Boisd. Ann. Soc. Ent. Fr. 1852, p. 294¹; Strecker, Cat. Butt. N. Am. p. 92².

Brephidium exilis, Scudd. Bull. Buff. Soc. Nat. Sc. iii. p. 124³.

Alis brunneis, ad basin fuscis, ad marginem externum quoque fusciscentibus, ciliis albis; posticis maculis indistinctis fuscis ad marginem externum: subtus rufescenti-brunneis, ad basin canescentibus, lineis interruptis albis frequenter transfasciatis; posticis maculis sex magnis nigris argenteo ornatis, ad marginem externum, harum duabus ad angulum analem fere omnino argenteis, maculis tribus ad basin nigris albo cinctis, una subcostali altera cellulari tertia infra eam, maculis his vero interdum obsoletis.

♀ alis omnino fusciscentioribus, ad basin cæruleo atomatis: subtus alis maris similibus.

Hab. NORTH AMERICA, Texas, Arizona, California¹.—GUATEMALA, Champerico, San José de Guatemala (*Champion*).—VENEZUELA.

This beautiful and well-marked little species has only been noticed within our borders by Mr. Champion, who took it in some numbers in salt marshes on the shores of the Pacific both at Champerico and San José de Guatemala. It was previously known as an inhabitant of the south-western States of America from California to Texas. We also possess specimens from Venezuela which seem inseparable from northern examples, and show what a very extensive range this, almost the smallest of known species of butterflies, has.

NOTE.—Since the foregoing account of the Lycænidae was printed, Mr. S. H. Scudder has written to us demurring to our statement of his views as to the position of the genus *Eumæus* as regards the Erycinidae and Lycænidae. On again referring to his published paper on the subject, we see that our brief statement requires modification; and in order to make this more explicit, and also to obtain Mr. Scudder's most recent views on the subject, we requested him to be good enough to send us a note for insertion here. To this he kindly acceded, and forwarded us the following interesting communication:—

Note on the Group Eumæidi.

By SAMUEL H. SCUDDER.

ON calling the attention of the Editors of the 'Biologia' to an inaccurate statement (on p. 5 of the present volume) of my published views regarding the relation of the Eumæidi to the allied groups of butterflies, they kindly invited me to contribute to it a note upon the systematic position of these insects; and although I have substantially nothing to add to what has already been published *, I gladly avail myself of their courtesy for a fresh statement of my views.

The immediate occasion of my interest in this group was the opportunity, through the kindness of friends, of studying their early stages; and as I was then fresh from a study of the same stages of the different tribes of Lycæninæ, the opportunity of examining the nearly complete history of an allied insect, whose position had been the subject of much doubt, was very welcome.

It should be premised that I differ from most lepidopterists in regarding the Lemoniinae (Erycininae) and Lycæninæ as divisions (subfamilies) of one family group, to which I apply the name of Lycænidæ; and that the above terms are used in that sense in the present note, the termination sufficiently indicating the value of each group-name. My opinion is based on the close affinity of the two groups (never widely sundered by entomologists), on the fact that, so far as we know them, the larvæ of Lemoniinae differ less than any others from those of Lycæninæ, on the compact form and close girding of the chrysalis of both groups, the triarate or flattened eggs, and on the very general agreement of the two groups in the imago in such important characters as the narrowness of the front of the head between the eyes, so that the antennal sockets encroach upon the orbits, the antennal structure, the close union of the mesothorax and metathorax, the neuration, and the bent lateral appendages of the upper unpaired organ of the male abdomen.

That the Eumæidi belong to the Lycænidæ and not to the Satyrinæ, as formerly claimed, is shown by the narrow front of the head, the widely-separated antennæ, and the feeble degradation of the male fore tarsi—characters of prime importance found in all Lycænidæ and in no Satyrinæ. Now, too, that their early history is known, and the larva is found to have a partially retractile head and an entire terminal segment,

* "The Structure and Transformations of *Eumæus atala*," Mem. Bost. Soc. Nat. Hist. ii. pp. 413–419, pl. 14. Boston, 1875. 4to.

and the chrysalis a girth around the middle, there is no need of further discussing any supposed Satyrine affinities.

Their reference to the Lycæninæ rather than to the Lemoniinæ is easily defended, though naturally not so conspicuous; for the fore legs of the male are amply provided beneath with spines, and the end of the single exarticulate joint is armed with a pair of stout curved spines and densely fringed with a pile of short hairs, appearing to represent the paronychialia; while the subcostal nervure of the fore wings has only two superior nervules. Our knowledge of the early stages of Lemoniinæ is exceedingly meagre, so that we can here draw no decided conclusions. There is, indeed, no greater desideratum in the study of butterflies than a knowledge of the transformations of the principal genera of this subfamily. But from what little we do know, we are aware that the onisciform character of the larva, almost universal in Lycæninæ*, is hardly noticeable in the caterpillars of Lemoniinæ; and in this respect the Eumæidi, especially previous to the last stage, certainly show Lemoniid affinities, both in the form of the body, the comparatively large head, and the nature of the clothing; the last, not altogether dissimilar to that of *Feniseca*, consists of fleshy thorny tubercles in longitudinal rows. The chrysalis, speaking again with the same limitations, appears to accord with the Lycæninæ; for in the Lycæninæ, just as the caterpillar is strikingly different from those of all other butterflies by its onisciform habit, so the chrysalis differs from all in having the head invisible from above, being bent over to form a part of the ventral surface; generally the same is also true of the terminal segment of the abdomen. Though I have been able to examine autoptically only one or two chrysalids of Lemoniinæ, yet the published illustrations enable one to judge that in these points they probably do not differ, as those I have seen do not, from the great body of other butterflies. Now the chrysalis of *Eumæus atala* agrees in these points with the Lycæninæ, although the terminal segment of the abdomen is more exposed than usual with them.

While, then, there would seem to be little doubt that the Eumæidi should fall between the Lemoniinæ and the Lycæninæ, there appears to be small reason to place it as a separate group equivalent to either of them, and still less to place it within the limits of the Lemoniinæ. It should rather be placed, at least until our knowledge of the transformations of Lemoniinæ is vastly improved, as a group of Lycæninæ, in nearest position to the Lemoniinæ.

We may further consider the question, What are its relations to the other members of the subfamily Lycæninæ? At least as found in temperate regions, this subfamily is

* Mr. W. H. Edwards has recently shown that the earliest stages of *Feniseca* lack the onisciform character of later stages.

divisible into three tribes—the Theclidi (Hair-streaks), the Cupididi (Blues), and the Chrysophanidi (Coppers). Does *Eumæus* fall into either of these, or should it form a distinct and equivalent tribe? And if the last, to which of the others is it most nearly allied?

The differences between the three tribes mentioned are mainly found in the structure of the antennal club, of the subcostal nervure of the fore wings, and of the tip of the male tarsi. In the two latter points *Eumæus* agrees very well with the Theclidi, but with neither of the others, having two and not three superior subcostal nervules, and, as already stated, a pair of curving spines at the tip of the tarsi, a little larger than the straight preapical spines. In the structure of the antennal club it also more nearly approaches the Theclidi than the other tribes, but is peculiar in its apical tapering, the diminution in size affecting five or six joints. It also differs strikingly from all the rest in the break in the vein closing the discal cell in both wings, and in the horizontal position of the nearly straight middle joint of the palpi. It is therefore evidently separated from either of the three groups more widely than they are from one another, forcing us to consider it a distinct group from any, while its affinity to the Theclidi will not allow us to look upon the group as of equal value to the three together. The logical conclusion is that, like them, it forms a tribe of Lycæninæ, related on the one hand to its other tribes through the Theclidi, and on the other hand to the Lemoniinæ.

The early stages lead to nearly the same conclusion, so far as they can help us. Certainly the caterpillar is very different from any of the known Lycæninæ, though it is somewhat allied to the Chrysophanidi, through *Feniseca*, by its comparatively large head and arrangement of fascicled hairs. It is in this phase of its structure that its affinity to the Lemoniinæ is most evident. In its chrysalis stage, however, *Eumæus* is clearly Lycænine, and again shows its relationship to the Theclidi in the structure of the minute scattered dermal appendages. These in the Chrysophanidi are fungiform; in the Cupididi they consist of uniformly tapering hairs, abundantly provided with minute spicules diverging from the hairs at right angles; in the Theclidi they form cylindrical equal hairs, tapering only at the tip, and the spicules with which they are profusely provided diverge from the stem at right angles; while in the Eumæidi they are equal, compressed, twisted ribands, tapering only at the extreme tip.

Fam. PAPILIONIDÆ*.

Following Mr. Bates's arrangement of the Rhopalocera, the Papilionidæ contains two subfamilies—the Pierinæ and Papilioninæ. Both possess six perfect legs in each sex; the pupa is attached by the tail, and a girdle across the middle sustains it in an upright position. Mr. Bates further adds that the wing-cells, at least in the hind wings, are closed by perfect tubular nervules; but we are not satisfied that this is always the case, for the lower discocellular, in not a few instances, appears to be atrophied in some part of its length.

The two subfamilies may be further distinguished as follows:—

- Tibiæ of anterior legs without leaf-like appendage; lower discocellular of primaries placed at an angle to the median (except in some *Dismorphia*); claws of all legs bifid PIERINÆ.
- Tibiæ of anterior legs furnished with leaf-like appendage; lower discocellular of primaries in a line with the median; claws simple (except in ♀ *Leptocercus*) PAPILIONINÆ.

Subfam. *PIERINÆ*.

An examination of the American Pierinæ has convinced us that *Dismorphia* and its allies are widely separated from the rest of the subfamily. Making allowance for the great modification of the shape of the wings due to the mimetic forms assumed by so many of the species, there remain characters in the wing-neuration, and especially in the structure of the male secondary organs, which point to their complete separation. We propose therefore to divide the subfamily into two groups.

Group *PIERINA*.

Subcostal nervure of primaries two- or three-branched; tegumen of the male with a single central rod.

- A. Terminal joint of the palpi more or less elongated in both sexes.
- A. Second subcostal branch of the primaries emitted near the apex.

PEREUTE.

Pereute, Herr.-Schäffer, Prodr. Syst. Lep. ii. p. 6 (1867); Butler, Cist. Ent. i. pp. 34, 55.

This is a widely ranging Neotropical genus containing eight or nine species, of which two are found in our country—one being the common *P. charops*, which spreads from Southern Mexico to Peru, &c., and is found in the mountainous districts of all the

* See Mr. Bates's "Contributions to an Insect-Fauna of the Amazons Valley," Journ. Ent. i. p. 218.

intermediate region; the other is restricted to the Volcan de Chiriqui. The South-American species are chiefly Andean, but two or three are found in South-eastern Brazil.

The subcostal nervure of the primaries of *Pereute* (*P. charops*) emits two branches, one before and the other a long way beyond the end of the cell; the upper radial meets the subcostal some way beyond the end of the cell, thus there is no upper discocellular; the middle discocellular makes a large obtuse angle, both with the subcostal and with the lower discocellular, which meets the median at nearly a right angle. The upper discocellular of the hind wings meets the subcostal a short way beyond the origin of the first branch; the lower discocellular the median a little nearer the origin of the second branch, the median side of the cell being quite double that of the costal side. The antennæ have forty-nine joints, of which about eleven form a long tapering club. The palpi are densely hairy, having the terminal joint long and slender, tapering, except just at the tip, where it is slightly thickened; the middle joint is about half the length of the basal joint. The eyes are smooth. The tibia and tarsus in all the legs are spinous, especially on the under surface; the basal portion of the femur is setose. The harpagones of the secondary male organs are simple lobes slightly setose on the outer surface, the somewhat undulating terminal edge meeting the dorsal edge nearly at a right angle, the tegumen has a single central pointed rod; the bursa copulatrix of the female appears to be without any spinous patch.

1. *Pereute charops*.

Euterpe charops, Boisd. Sp. Gen. i. p. 407, t. 18. f. 1¹.

Pereute charops, Butler & Druce, P. Z. S. 1874, p. 357².

Euterpe marina, Doubl. & Hew. Gen. Diurn. Lep. p. 34, t. 5. f. 2³.

Euterpe swainsoni, Reak. Pr. Ent. Soc. Phil. ii. p. 346⁴.

Alis fusco-nigris, squamis griseis diffusis, in anticis intra cellulam et inter venas marginem externum versus, lituris plus minusve distinctis formantibus; linea angusta costali usque ad cellulæ finem extensa flava: subtus fuscis; anticis linea costali flava ut supra, fascia obliqua lata venis divisa per cellulæ finem ad marginem externum eunte, flava; posticis linea arcuata a costæ basi angulum apicalem versus, et macula elongata supra eam coloris ejusdem: antennis flavo-albis, pedibus griseis.

♀ alis fuscis, anticis linea angusta costali a basi ad cellulæ finem flava, fascia obliqua lata venis divisa ad cellulæ finem ad marginem externum extensa coccinea; subtus ut supra, sed alis pallidioribus et posticis flavo notatis sicut in mari.

Hab. MEXICO^{1 3}, Jalapa (*Höge*), Orizaba (*H. J. Elwes*), Chiapas (*Zættling*⁴); GUATEMALA, Dueñas, Polochic and Central valleys (*F. D. G. & O. S.*), Panima, Las Mercedes, San Gerónimo (*Champion*); COSTA RICA (*Van Patten*²), Caché (*Rogers*); PANAMA, Bugaba Volcan de Chiriqui, Peña Blanca (*Champion*), Chiriqui (*Arcé*).—VENEZUELA; ECUADOR; EASTERN PERU.

A very abundant upland species occurring from Southern Mexico southwards through Central America to Venezuela and Peru. The males vary slightly in the extent and density of the grey markings of the upper surface of the wings; we also note that in

some of our male examples from Merida in Venezuela the band of the primaries beneath is almost wholly red as in the female, these are associated with males of the ordinary type in which the band is wholly yellow. Again, in an example from the Sierra Nevada of Santa Marta the band in question is orange, thus showing that there exists a gradual passage from one form to the other. Examples from Ecuador and Peru are of the normal type, but the hind wings are perhaps a trifle darker.

The female was first figured by Boisduval¹ under the name of *Euterpe charops*; subsequently the male was figured by Doubleday and Hewitson³ as *E. marina*, but the relationship of the two was recognized in the text of their work.

2. *Pereute cheops*.

Pereute cheops, Staud. Ex. Schmett. p. 23¹.

P. charopi similis, sed posticis subtus maculis basalibus coccineis notatis.

Hab. PANAMA, Chiriqui (*Ribb  *¹).

We have but a single female example of this species, sent us by Dr. Staudinger. There can be no doubt that the species is distinct from *P. charops*, to which it bears the same relationship that *P. leucodrosime* does to *P. callinice* of Felder. Its range appears to be restricted to the slopes of the Volcano of Chiriqui.

LEODONTA.

Leodonta, Butler, Cist. Ent. i. pp. 34, 55 (1870).

This is an Andean genus containing about six species, only one of which enters our country, reaching as far north as the mountains of Costa Rica.

In general structure this genus resembles *Pereute*, having the same wing-neuration, and showing no material difference in the secondary male appendages. The wings, however, have a different outline and carry a strong marginal prominence both on the primaries and secondaries. The female has a well-defined chitinous patch in the bursa copulatrix, rounded at each end and constricted in the middle, and covered with strong spinous papill  ; we have not found any such structure in *Pereute*.

1. *Leodonta chiriquensis*. (*Euterpe zenobina*, Tab. LIX. figg. 5, 6.)

Pereute chiriquensis, Staud. Ex. Schmett. p. 23, t. 15¹.

Alis nigris, anticis plaga subtriangulari infra cellulam, ad marginem internum latiore, lactescenti-albis, macula in cellula, duabus ultra eam serieque submarginali, coloris ejusdem; posticis dimidio basali lactescenti-albis ad basin et extrorsum marginem internum versus griseo tinctis, maculis ad marginem ipsum intra venas albis: subtus anticis fere ut supra, sed dilutioribus, maculis ad apicem et in costa ultra cellulam flavis; posticis rufescenti-fuscis, fascia arcuata discali irregulari venis divisa per cellul   finem transeunte flava, macula coloris ejusdem ad cost   basin, duabus coccineis prope eam, linea irregulari exteriori obsoleta maculisque ad marginem squamorum flavorum.

♀ maris similis, sed anticis plaga ad cellul   finem majore.

Hab. COSTA RICA, Irazu, Rio Sucio (*Rogers*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Veraguas (*Arcé*).

We have many specimens of this species from Costa Rica as well as the State of Panama which we referred at one time to the Peruvian *L. zenobina* of Hopffer, a species closely allied to *L. zenobia*, except that the secondaries of the former have a series of marginal white spots between the nervules. *L. chiriquensis*, however, differs from *L. zenobina* in the greater width of the whitish band of the primaries, and the more irregular inner edge of the dark margin of the secondaries; the spots, too, towards the apex of the primaries are more isolated. Like its congeners it is an upland species, Mr. Champion's specimens from the Volcan de Chiriqui having been taken at an elevation of between 4000 and 6000 feet above the level of the sea.

We have figured a specimen from the slopes of the Volcan de Irazu.

B. Second subcostal branch of the primaries emitted near the end of the cell.

CATASTICTA.

Catasticta, Butler, Cist. Ent. i. pp. 34, 55 (1870).

The metropolis of this genus is the Andes from Colombia to Bolivia, where probably not less than fifty species are found. The genus is fairly represented in our region by ten species, which are distributed over the whole country from Southern Mexico to Panama. Generally speaking, the different species inhabit the upland forests, and may sometimes be found congregating in some numbers: they settle on or near the ground, and are rather sluggish in their habits.

The subcostal nervure of the primaries emits three branches—the first some way before the end of the cell, the second at the end, and the third near the apex. The lower and middle discocellulars are subequal; the subcostal and median sides of the cell are subequal; the upper radial meets the subcostal at about the same distance from the second branch as the second is from the first. The discocellulars of the secondaries are almost equal and in a straight line. The antennæ have about thirty joints, and terminate with rather an abrupt club. The palpi are very hairy anteriorly; the terminal joint is slender and slightly constricted in the middle—it is shorter than the second joint, which again is shorter than the basal one. The eyes are smooth. The secondary male sexual organs have the harpagones simple lobes, setose on the outer surface and rounded at the end, on the ventral edge near the base is a strong spine directed outwards; the tegumen has a short stout central terminal point. The bursa copulatrix of the female has an oval patch thickly set with short chitinous spinous papillæ, the edges of this patch seem to be turned inwards. This female character seems to vary in different species: in *C. sisamnus* it is as we have described it, while in *C. teutila* it is oval and constricted in the middle, and thus resembles that of *Leodonta*.

a. Sexes alike.1. *Catasticta flisa*.

Euterpe flisa, Herr.-Schäff. Aussereur. Schmett. p. 54, ff. 93, 94 (ex Boisd. MS.) ¹.

Euterpe arechiza, Reak. Proc. Ac. Phil. 1866, p. 244 ².

Catasticta arechiza, Butl. & Druce, P. Z. S. 1874, p. 357 ³.

Euterpe bithys, Reak. Pr. Ent. Soc. Phil. ii. p. 345 (nec Hübn.) ⁴.

Alis fusco-nigris, fascia maculosa communi a costa antecarum ultra cellulam ad medium marginis posticarum interni albida, maculis exterioribus in serie submarginali et interdum aliis minutis ad marginem posticarum coloris ejusdem: subtus brunnescentioribus, anticis fascia et maculis majoribus, punctis quibusdam ad apicem et ad marginem ipsum flavis; posticis fascia albida flavo maculata, punctis tribus prope basin aliisque minutis in serie duplici exteriori in margine ipso quoque flavis, maculis duabus ad basin coccineis.

♀ mari similis, sed maculis majoribus et fascia posticarum ad costam et ad marginem internum flavo tineta.

Hab. MEXICO, Oaxaca (*Fenochio*), Omilteme, Xucumanatlan (*H. H. Smith*), Jalapa, Orizaba (*H. J. Elwes*), Cordova (*Rümeli*); GUATEMALA, San Gerónimo, Polochic valley, Dueñas (*F. D. G. & O. S.*), Balheu, Dueñas, Cerro Zunil (*Champion*); NICARAGUA (*Zettling* ⁴); COSTA RICA (*Van Patten* ³), Cache (*Rogers*); PANAMA, Chiriqui (*Arcé*), Volcan de Chiriqui (*Champion*).—COLOMBIA; VENEZUELA; ECUADOR.

It is to this species that the name *Euterpe teutila* of Doubleday has been frequently but erroneously applied, but this point was settled by Mr. Butler in 1874, after examining the type. At the same time Herrich-Schäffer, in figuring it in 1852, employed Boisduval's MS. name *flisa*, distinctly stating that it was not *teutila* of Doubleday. The next question that arises is whether the more northern specimens which we trace as far south as Ecuador are really separable from *C. bithys* of Hübner from Southern Brazil, the two forms being obviously very closely allied. We trace slight differences, which, taken together, seem sufficient to justify the two forms being considered, as heretofore, distinct. These consist in the absence in *C. bithys* of the discal spots of the secondaries in the male, and in the marginal spots in the same wings of the female being yellow instead of white; the cellular band has no yellow spot at either end in the Brazilian insect; the outer margin of the primaries, too, is hardly, if at all concave. Seeing that Herrich-Schäffer adopted Boisduval's MS. name *C. flisa* for the present species, and gave an excellent figure of it, this name must clearly supersede Reakirt's title *E. arechiza*, published in 1866, though Messrs. Butler and Druce employ the latter name.

There is considerable variation as regards the transverse band of the upper surface of the wings in the males of this species. This especially affects Guatemalan examples, in some of which this band is almost obsolete; specimens from Costa Rica, the State of Panama, and South America agree very closely with the typical Mexican insect. Like the last it is a common upland species throughout our region, and its habits are similar.

2. *Catasticta nimbice*.

Euterpe nimbice, Boisd. Sp. Gen. i. p. 409¹; Doubl. Gen. Diurn. Lep. p. 34, t. 5. f. 1²; Reak. Pr. Ent. Soc. Phil. ii. p. 345³.

Alis fuscis, fascia maculosa communi a costa anticarum ultra cellulam ad marginem internum posticarum straminea, macula ad cellulæ finem, serie submarginali communi punctorum coloris ejusdem: subtus fere ut supra, sed dilutioribus, anticis apicem versus albicantibus, marginibus anticarum et area tota posticarum flavo maculatis, his punctis stramineis discalibus absentibus, maculis duabus ad basin posticarum coccineis.

♀ mari similis, sed fascia maculisque paginæ superioris flavis, subtus quoque flavescentioribus.

Hab. MEXICO¹, Xucumanatlan (*H. H. Smith*), Orizaba (*H. J. Elwes*, *F. D. G.*, *H. H. Smith*), Pinal near Puebla (*H. J. Elwes*), Cordova (*Rümelin*), Oaxaca (*Fenocchio*), Chiapas (*Zættling*³).

This species of *Catasticta* seems confined to Southern Mexico, its place being taken in Guatemala, Costa Rica, and the State of Panama by the two following closely allied forms. From both of these the male may at once be distinguished by the dark colour of the base of the wings, which in the primaries embraces nearly the whole of the cell.

C. nimbice is found in mountainous districts up to an altitude of 8000 feet.

3. *Catasticta ochracea*. (*Euterpe ochracea*, Tab. LIX. figg. 11, 12 ♂, 13 ♀.)

Euterpe ochracea, Bates, Ent. Monthly Mag. i. p. 31¹.

C. nimbice similis, sed area alarum interna (præter venis) ochracea, maculis submarginalibus majoribus; subtus alis dilutioribus et colore ochracea latiore.

♀ feminæ *C. nimbice* persimilis.

Hab. GUATEMALA, Dueñas, Central valleys, Chisoy and Polochic valleys, Tablelands (*F. D. G. & O. S.*¹), Senahu, Panima (*Champion*).

This is the Guatemala form of *C. nimbice*, occurring throughout the central part of that country at elevations of 3000 feet and upwards. The male may be readily distinguished from that sex of *C. nimbice* by the ochraceous colour occupying nearly the whole of the cell of the primaries, as well as the space below it between the median and submedian nervures.

We have figured type specimens, the male from Dueñas, the female from Central Guatemala.

4. *Catasticta bryson*, sp. n.

Catasticta ochracea et nimbice, Butl. & Druce, P. Z. S. 1874, p. 357¹.

C. nimbice quoque similis, sed *C. ochraceæ* proxima, maculis posticarum submarginalibus majoribus, fascia ochracea fere confluentibus; subtus colore ochracea superante.

♀ mari similis, sed alis multo pallidioribus.

Hab. COSTA RICA (*Van Patten*¹), Irazu (*Rogers*); PANAMA, Veraguas, Chiriqui (*Arcé*).

This is the Costa Rican and Panama form of *C. nimbice*, but more closely allied to *C. ochracea* than to that species; it resembles *C. ochracea* in the extent of the ochre colour of the wings, but the submarginal spots of the secondaries are considerably larger, that between the subcostal nervure and its branch joining the ochre band. The female differs from the same sex of *C. ochracea* even more than the male, the pale yellow band of the secondaries extending to the base of the wing, and the submarginal spots being very large.

The sexes of this species appear in Messrs. Butler and Druce's list of Costa-Rican butterflies as *C. ochracea* and *C. nimbice*, but it is not evident to which sex the names apply, nor is the question now of any moment.

Besides Van Patten's specimens, we have several others from Mr. Rogers, but only two from the district of Chiriqui, where the species would appear less common.

5. *Catasticta theresa*. (*Euterpe theresa*, Tab. LIX. fig. 14.)

Catasticta theresa, Butl. & Druce, P. Z. S. 1874, p. 358¹.

Alis fuscis; anticis litura elongata in cellula, altera subtriangulari infra eam (ramis medianis divisa) et maculis apicem propioribus, ochraceis; posticis dimidio basali (præter basin ipsam) venis divisa quoque ochraceis, maculis duabus exterioribus attingentibus aliisque minoribus marginem versus coloris ejusdem: subtus fere ut supra, sed dilutioribus, anticis punctis submarginalibus, maculis duabus cellulæ finem propioribus aliisque elongatis in margine ipso, albescentibus; posticis linea bene angulata ad marginem externum grisea, in margine ipso maculis sex aut septem flavis, aliisque per aream totam diffusis.

♀ mari similis, sed colore alarum ochraceo magis restricto et flavescentiore, alis subtus omnino pallidioribus.

Hab. COSTA RICA (*Van Patten*¹), Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé*).

This species was described by Messrs. Butler and Druce from a single male example which formed part of Van Patten's Costa-Rican collection. We have since received others of both sexes from the same country from Mr. Rogers. In the neighbourhood of Chiriqui it appears to be a common species, as a good series of examples have been sent us from that country.

We have figured a specimen from Chiriqui.

6. *Catasticta sisamnus*.

Papilio sisamnus, Fabr. Ent. Syst. iii. p. 44¹.

Euterpe sisamnus, Butl. Cat. Fabr. Diurn. Lep. p. 211².

Euterpe telasco, Lucas, Rev. Zool. 1852, p. 290³.

Euterpe pitana, Feld. Reise d. Nov. Lep. p. 157, t. 23. ff. 9, 10⁴.

Catasticta sisamnus, Butl. & Druce, P. Z. S. 1874, p. 358 (partim)⁵.

Alis nigris, fascia communi lata venis divisa a costa prope cellulæ finem anticarum ad marginem internum posticarum alba, anticis maculis duabus (interdum tribus) ultra cellulam serieque punctorum submarginali (interdum aliis ad marginem ipsum) coloris ejusdem; posticis punctis sex in margine externo aliisque interioribus (nonnunquam obsoletis), albis: subtus ut supra, sed pallidioribus, maculis omnibus majoribus et cum fascia flavo tinctis.

♀ mari similis, sed fascia paginæ superioris flava (interdum alba flavo tincta), subtus omnino flavescentioribus.

Hab. COSTA RICA (*Van Patten*⁵), Cache (*Rogers*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—COLOMBIA to BOLIVIA.

We have a specimen of this species from Peru which we have compared and found to agree with the type of *E. telasco* in the Paris Museum; this does not differ from a large series of males in our collection from Costa Rica and the State of Panama. We should employ this name of Lucas were it not practically certain that Fabricius's title *P. sisamnus* is applicable to the same species, as Mr. Butler has already been at some pains to demonstrate. Judging from Felder's figure, *E. pitana* is also a synonym of the same insect.

The male specimens are very constant in their markings, and may be distinguished from the species which follows by the broad black margin to the secondaries, which reaches to the end of the cell and has a sharply defined inner edge. The females vary as to the colour of the common band of the wings: in the majority of cases this is yellow, in others it is white, and we can trace a gradual transition from one into the other.

E. sisamnus occurs at a lower elevation than most of its congeners, and we have an example from the Isthmus of Panama taken at only a little above the sea-level. We have a pair of this species taken together by Mr. Rogers in Costa Rica.

7. *Catasticta hegemon*, sp. n. (Tab. LXIV. figg. 21, 22 ♂, 23, 24 ♀.)

Catasticta sisamnus, Butl. & Druce, P. Z. S. 1874, p. 358 (partim)¹.

C. sisamno similis, sed fascia communi paginæ superioris latiore et in posticis ad marginem externum multo magis extensa.

♀ mari similis, vix flavo tineta.

Hab. COSTA RICA (*Van Patten*¹); PANAMA, Veraguas, Chiriqui (*Arcé*), Volcan de Chiriqui (*Champion*).—COLOMBIA; ECUADOR.

We have specimens of both sexes of this species, and there can be little doubt but that it is specifically distinct from *E. sisamnus*, for not only are the discal spots of both wings larger, but those of the secondaries are confluent with the transverse band; the outer margin is thus very much narrower, and its inner edge is very irregular, almost serrate. The female is very similar to the male; and so far as our specimens go the central band is white and not yellow, as in the majority of that sex in the allied form.

We have figured a male and female from Costa Rica.

8. *Catasticta cerberus*, sp. n. (Tab. LXIV. figg. 19, 20 ♂.)

♀ alis fuliginosis, fascia communi (in anticis in maculas divisa) a costa ultra cellulam anticarum ad marginem internum posticarum albida, macula (fere obsoleta) ad cellulæ anticarum finem, serie communi submarginali et posticis maculis ad marginem ipsum coloris ejusdem: subtus anticis fere ut supra, maculis submarginalibus majoribus aliisque quinquelineatis plerumque croceis in margine ipso, posticis fascia

mediana per cellulam, venis divisa, altera submarginali extrorsum profunde serrata venis quoque divisa, maculis in margine ipso triangularibus aliisque ad basin albidis, lineolis inter venas, una elongata in cellula et maculisque costalibus, croceis.

♂ adhuc ignotus.

Hab. COSTA RICA, Irazu (*Rogers*).

We have a single female specimen of this species, which is distinct from anything known to us. Perhaps its nearest ally is *E. tomyris* of Felder, but the distinctions are obvious, as may be seen by comparing the figures.

b. Sexes dissimilar.

9. *Catasticta teutila*.

Euterpe teutila, Doubl. Ann. Mag. Nat. Hist. xix. p. 386¹.

Euterpe sebennica, Luc. Rev. Zool. 1852, p. 294²; Herr.-Schäff. Aussereur. Schmett. p. 54, ff. 89-92³.

Euterpe eudoica, Reak. Pr. Ent. Soc. Phil. ii. p. 345⁴.

Alis nigris, fascia obliqua venis divisa a costa ad cellulæ anticarum finem, ad marginis interni posticarum medium, serieque punctorum marginali albidis: subtus pallidioribus fascia communi latiore, anticis punctis exterioribus albis majoribus aliisque quinque elongatis ad marginem ipsum, plerumque flavis; posticis costa ad venam costalem alba, ad marginem externum punctis sex aut septem elongatis, serieque interiore angulatis, aliisque variis basin versus, flavis.

♀ mari similis, sed fascia communi multo latiore et aurantiaca (nec albida), punctis discalibus absentibus; subtus maculis omnibus majoribus et aurantiacis (nec flavis).

Hab. MEXICO, Omilteme (*H. H. Smith*), Amecameca (*F. D. G.*), Cuesta de Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Jalapa (*H. J. Elwes*, *F. D. G.*, *Höge*), Oaxaca (*Fenochio*); GUATEMALA, Dueñas, Volcan de Fuego, Polochic valley (*F. D. G. & O. S.*), Los Altos (*O. S.*), Dueñas, San Lucas (*Champion*); HONDURAS (*Zettling*⁴); COSTA RICA, Irazu (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Chiriqui (*Arcé*, *Zahn*?).

Mr. Butler has explained how this name of Doubleday's became associated with the species we refer to *C. flisa*, Bdv. (P. Z. S. 1874, p. 357), and we have no doubt as to the correctness of his view. The title *C. teutila*, therefore, however much we may regret the circumstance, must supplant Lucas's name *E. sebennica*, which was given five years later. Both types were sent from Mexico.

The species appears to be fairly constant in its markings throughout its range; we notice, however, that females from Costa Rica have the orange band rather wider than in the typical Mexican form, but the difference is not material.

C. teutila is an upland species, common in all the mountainous regions of Mexico and Central America. In Guatemala we used to find it in the second-growth woods of the Volcan de Fuego at an altitude of 6000 or 7000 feet above the sea, and Mr. Champion took it on the Volcan de Chiriqui between 4000 and 6000 feet. Where the species occurs individuals are usually found in considerable numbers, and are easily captured, being of a sluggish habit.

10. **Catasticta actinotis.** (*Euterpe actinotis*, Tab. LIX. figg. 7, 8 ♂, 9, 10 ♀.)

Catasticta actinotis, Butl. Cist. Ent. i. p. 80¹; Lep. Ex. p. 117, t. 43. f. 6²; Butl. & Druce, P. Z. S. 1874, p. 358³.

Catasticta potamea, Butl. & Druce, P. Z. S. 1874, p. 358 (nec Felder)⁴.

Alis nigro-fuscis, lituris, inter cellulam et venas, extrorsum radiantibus olivaceis, anticis serie punctorum coloris ejusdem marginem externum subparalleli: subtus anticis fere ut supra, sed apicem versus maculis quibusdam purpureo-albidis et margine ipso maculis septem flavis notatis; posticis maculis griseis venis divis margini externo subparallelibus, altera fere obsoleta per cellulæ finem, macula elongata flava ad cellulæ finem in costam, altera infra eam, sex aut septem minoribus in margine ipso, aliisque per aream internam coloris ejusdem, maculis duabus ad basin coccineis.

♀ alis fuscis, anticis plaga magna venis nigris divisa per cellulæ finem et infra eam, angulum analem versus extendente, flava: subtus plaga ut supra, punctis septem exterioribus totidemque in margine ipso flavis; posticis macula in costa aliisque minoribus per totam aream diffusis flavis, posticis maculis coccineis ad basin sicut in mari.

Hab. COSTA RICA (*Van Patten*^{1 2}), Irazu (*Rogers*); PANAMA, Volcan de Chiriqui (*Arcé, Champion*).

This species is allied to *E. potamea* of Felder, under which name the male appeared in Butler and Druce's list of Costa-Rican butterflies; but we have no doubt that it is the male of the remarkable insect described and figured by the same authors as *Catasticta actinotis*. We have now a good series of males and three females from the above localities.

ARCHONIAS.

Archonias, Hübner, Zutr. iii. p. 19, ff. 461, 462; Kirby, Cat. Diurn. Lep. p. 429 (partim).

Euterpe, Swainson, Zool. Ill. ser. 2, ii. pl. 74; Doubl. Gen. Diurn. Lep. p. 33 (partim); Butl. Cist. Ent. i. pp. 34, 55.

Structurally this genus differs very little from *Catasticta*, but the wings are more rounded at the apex, and the second subcostal branch of the primaries is emitted a little beyond the end of the cell. In their coloration, however, its members have a very different pattern, some resembling Papilionidæ, such as *Papilio mylotus*, others certain forms of Heliconinæ, Ithomiinæ, &c. These latter, of which *A. eurytele* is a characteristic species, differ from the former in having the middle discocellular of the primaries much shorter than the lower, the latter meeting the median much nearer the origin of the second branch.

Altogether the genus itself is strictly a neotropical one, extending from the province of Tabasco southward over the whole of Tropical America.

It contains about thirteen or fourteen species, of which four are found within our region.

1. **Archonias approximata.**

Euterpe approximata, Butl. Cist. Ent. i. p. 174¹.

Alis fuliginosis, anticis macula ad cellulæ finem, altera infra eam, albis; posticis plaga ultra cellulam venis divisa et marginem internum versus extendente, coccinea: subtus ut supra, sed dilutioribus, anticis macula ad cellulæ finem flavida, posticis plaga paginæ superioris rosea, puncto interiore ad marginem internum,

aliisque minoribus in margine externo quoque flavidis, punctis duobus basalibus coccineis aliisque duobus ad costæ basin flavidis.

♀ mari similis, macula mediana anticarum flavicantiore, macula coccinea posticarum omnino majore, maculis paginæ inferioris flavidis saturatoribus.

Hab. MEXICO, Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Hondo (*Blancaneaux*); GUATEMALA, Polochic valley¹, Central valleys (*F. D. G. & O. S.*), San Isidro, Mirandilla, Zapote, Panima (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Cache (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Calobre (*Arcé*).

This is the northern representative of the Brazilian *A. terias*, its nearest ally being the Colombian and Venezuelan *A. critias* of Felder; from this it differs in having the discal spot of the secondaries wholly scarlet instead of partly rose-colour and partly white. In its general coloration it resembles *Papilio mylotes*, a species distributed over pretty much the same area; it is also like the form of *Heliconius doris*, which has red on the inner area of the secondaries.

A. approximata is widely distributed from the Mexican State of Tabasco to the State of Panama, and is everywhere more or less common. It inhabits the low-lying hot districts up to an elevation of about 3000 feet. It was described by Mr. Butler from a specimen from the valley of the Polochic river, presented by us to the British Museum.

2. *Archonias dismorphites*. (*Euterpe diamorphitis*, Tab. LIX. figg. 1, 2.)

Euterpe dismorphites, Butl. Cist. Ent. i. p. 80¹; Butl. & Druce, P. Z. S. 1874, p. 357².

♀ alis anticis fusco-nigris, serie punctorum submarginalium, ad apicem majoribus, altera interiore maculisque duabus intra cellulam, flavis, margine interno ipso et litura supra eum rubidis; posticis testaceo-rubidis, plaga costali elongata et margine externo nigricantibus, hoc punctis submarginalibus flavis ornatis: subtus fere ut supra, sed dilutioribus, maculis omnibus majoribus, posticis punctis submarginalibus albis (nec flavis) notatis.

Hab. COSTA RICA (*Van Patten*^{1 2}).

A single female example, which formed part of Van Patten's Costa-Rican collection, and served as the type of Messrs. Butler and Druce's description, is still the only specimen of the species with which we are acquainted, and is the one we now figure. It as well as the two following species are all allied to *A. eurytele* of Colombia and Ecuador; they all resemble in their style of coloration such species as *Heliconius formosus*, *Eucides vulgiformis*, *Eresia nigripennis*, *Ithomeis imitatrix*, *Enantia deione*, &c., which inhabit the same districts.

3. *Archonias lyceas*, sp. n.

A. dismorphiti similis, sed area interna posticarum et litura ad marginem internum anticarum rufo-aurantiacis (nec testaceo-rubidis), margine posticarum externo nigro introrsum magis serrato; subtus ut supra, sed dilutioribus et posticis punctis submarginalibus albis.

Hab. PANAMA, Bugaba (*Champion*).

We have two male specimens only of this species, both taken by Mr. Champion at Bugaba. The differences between these examples and the type of *A. dimorphites* are pointed out above, but it is possible that they are due to the differences of sex, though we hardly think so.

4. Archonias nigrescens. (*Euterpe nigrescens*, Tab. LIX. figg. 3, 4.)

Euterpe nigrescens, Salv. & Godm. Ann. & Mag. Nat. Hist. ser. 4, ii. p. 149¹.

A. dimorphiti quoque similis, sed anticis litura in cellula, altera submediana, angulum analem versus furcata, ferrugineis, posticis area interna (præter venis) coloris ejusdem; subtus ut supra, sed dilutioribus, area distali nigro reticulata et punctis submarginalibus albis notatis.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*¹), Mirandilla (*Champion*).

This species likewise is only known to us from two examples: the first, which we now figure, was sent us by one of our collectors from the Polochic valley; the second was taken by Mr. Champion at Mirandilla, on the Pacific slope of the Volcan de Fuego, at an elevation of about 1600 feet above the sea.

In the distribution of the black markings on the secondaries this species resembles *A. eurytele* more than either of the two preceding, but the border is wider, and beneath the large costal spot is completely united to the black outer border, and the primaries on the upper surface have the rusty colour more restricted.

EUCHEIRA.

Eucheira, Westwood, Trans. Ent. Soc. i. p. 38, t. 6 (1836).

The single species of this genus has much the appearance of a *Catantix*, but, besides the peculiarity of its habits described below, it has many important points of structural difference. The subcostal of the primaries emits two branches before the end of the cell and one beyond it: there is a distinct upper discocellular in the male, so that the upper radial does not directly join the subcostal; in the female it does so, and the upper discocellular is absent. The second and third joints of the palpi together are shorter than the basal joint; the terminal joint is rather slender, subcylindrical, and shorter than the second joint. The antennæ have a very distinct club. The secondary male organs do not materially differ from those of *Catantix*, the harpagones being simple lobes and the tegumen bearing a short blunt central spine.

The bursa copulatrix of the female has no spiny chitinous patch.

1. Eucheira socialis.

Eucheira socialis, Westw. Trans. Ent. Soc. i. p. 38, t. 6¹; Staud. Ex. Schmett. p. 26, t. 16².

Alis fuscis, anticis margine costali et macula in cellula albidis, fascia communi maculosa ultra cellulam, a costa anticarum ad marginem internum posticarum, serieque punctorum marginibus propioribus, coloris ejusdem: subtus multo dilutioribus. anticis maculis omnibus majoribus, striga ad cellula basin albida; posticis maculis fere obsoletis.

Hab. MEXICO¹, Guanajuato (*Boucard*), Amecameca (*F. D. G.*).

This appears to be a common insect in Mexico, inhabiting the upland oak-districts, where it lives in societies. Its nest, as described by Prof. J. O. Westwood, is so peculiar that we here transcribe his account of it. He says:—"The nest of this insect is of firm texture, not much unlike very thick parchment, which it also resembles in colour. It is about eight inches long, of a somewhat oval form, narrowed at the top for about three inches into a kind of neck, and attached to a slender branch, without the power of swinging backwards and forwards, in consequence of its being built at the junction of a twig which runs down the neck of the nest. The lower part of the neck is a little produced, and is terminated by a circular orifice about two thirds of an inch in diameter. On examining the texture of the nest with a very high-powered lens, it is found to be composed of an infinity of shining and very slender silken lines crossing each other in every direction: from the strength of its texture, therefore, the labour employed in its construction must be very great. On the whole, this nest has much the appearance of some of the Paper-making Wasps' nests, such as *Vespa chartaria*. On making a longitudinal incision from the bottom of the nest a remarkable appearance presented itself, not fewer than a hundred chrysalides being attached both to its inner surface, occupying the upper half of the dome of the nest, and to the lower part of the twig descending through its neck. The nest is therefore the pendent habitation of the social caterpillars of a species of butterfly, and is, in fact, the most perfectly formed nest of any Lepidopterous insect yet described."

HESPEROCHARIS.

Hesperocharis, Felder, Verh. zool.-bot. Ges. Wien, xii. p. 493.

Hesperocharis is a genus containing a limited number of species, which, again, are sparingly represented by individuals; these affect mountainous districts from Southern Mexico to Chili and the Argentine Republic. About twenty species of the genus are known, of which six inhabit our region.

The subcostal nervure of the primaries of *H. marchali* emits one branch before the end of the cell and two close to the apex. The middle and upper discocellulars are short and subequal. The antennæ are but slightly thickened towards the end (more distinctly clubbed in *H. costaricensis* and *H. crocea*). The palpi are covered in front with very long hairs; the terminal joint is rather slender and clavate, about the same length as the second, and both considerably shorter than the basal joint. The harpagones are simple lobes, rounded at the extremity with an internal lobe; the tegumen besides the terminal hook or claw has a blunt projection on either side directed forwards and slightly upwards.

The female of *H. costaricensis* has a spinous patch similar to that of *Catasticta*; it appears to be elongate oval, but with hardly any median constriction.

1. *Hesperocharis graphites*. (Tab. LX. figg. 1, 2.)

Hesperocharis graphites, Bates, Ent. Monthly Mag. i. p. 32¹.

Alis sulphureis, anticis maculis duabus ad cellulæ finem, una in costa, altera in vena radiali, apice et margine externo anguste fusco limbo, linea irregulari angulata interiore margini externo subparalleli; posticis ad angulum analem denticulatis et venis omnibus ad marginem externum nigro tinctis: subtus anticis in cellula croceis, maculis et lineis ad apicem et cellulæ finem ut in pagina superiore, aliisque in margine ipso nigris; posticis lineis variis undulatis vel angulatis transvittatis, maculisque quinque in cellula coloris ejusdem.

Hab. GUATEMALA, Central valleys (*F. D. G. & O. S.*¹); COSTA RICA, Rio Sucio (*Rogers*); PANAMA, Chiriqui (*Arcé*), Volcan de Chiriqui (*Champion*).

A single specimen, obtained by us in the interior of Guatemala, formed the basis of Mr. Bates's description, and this is the only Guatemalan example we have seen. Our other specimens are from Costa Rica and the State of Panama; these are of a rather brighter yellow colour than the type, and the submarginal band of lunules on the primaries, both above and below, is rather nearer the margin itself. Like its congeners it is a mountain species; our specimen was taken at upwards of 3000 feet above the sea, and one of Mr. Champion's at a similar elevation in the State of Panama. We figure the type from Guatemala.

2. *Hesperocharis avivolans*.

Pieris avivolans, Butl. P. Z. S. 1865, p. 457, t. 26. f. 4¹.

H. graphiti similis, anticis colore fusco marginis externi latiore, posticis maculis nigris in venis ad marginem externum majoribus; subtus anticis in cellula minus croceis, lineisque omnibus in alis ambabus latioribus.

Hab. MEXICO¹, Omilteme (*H. H. Smith*), Amecameca (*F. D. G.*), mountains of Oaxaca (*Fenochio*).

This is the Mexican form of *H. graphites*, from which it differs in the greater amount of black towards the outer margin and the apex of the primaries. It was described by Mr. Butler from a Mexican specimen in the British Museum. We have several from the same country, showing it is a highland species, ranging to an elevation of 8000 or 9000 feet.

3. *Hesperocharis costaricensis*. (Tab. LX. figg. 3, 4.)

Hesperocharis costaricensis, Bates, Ent. Monthly Mag. iii. p. 49¹; Butl. & Druce, P. Z. S. 1874, p. 357².

Alis flavescenti-albis, anticis ad apicem ipsum vix rufo limbatis; subtus anticis, costa et apice cum area tota posticarum pallide ochraceis, his lineis obsoletis fuscis, marginem externum prope valde angulatis, variegatis.

♀ mari similis, sed alis flavescentioribus.

Hab. COSTA RICA (*Carmirol*¹, *Van Patten*²), Cache (*Rogers*), PANAMA, Chiriqui (*Zahn*), Volcan de Chiriqui (*Champion*).—VENEZUELA.

The original specimen, described by Mr. Bates, was sent us from Costa Rica by the

bird collector Julian Carmiol, others were subsequently obtained in the same country by Van Patten and Rogers, and we have since traced it through the State of Panama to the neighbourhood of Merida in the highlands of Venezuela. It apparently belongs to the more upland districts, Mr. Champion's specimen having been taken at an elevation of from 3000 to 4000 feet above the sea.

H. costaricensis is allied to *H. marchali*, from which it differs in the absence of the black apical markings of the primaries, the less obvious markings on the secondaries beneath, and also on the apex of the primaries. We figure the type from Costa Rica.

4. *Hesperocharis passion*.

Pieris passion, Reak. Pr. Ac. Phil. 1866, p. 336¹.

Alis cretaceo-albis, immaculatis; subtus quoque albis.

♀ alis lacteis, anticis ad apicem ipsum vix fusco limbatis; subtus venis bene indicatis, anticis ad apicem et area tota posticarum ochraceo lavatis et lineis angulatis obsoletis transnotatis.

Hab. MEXICO, Venta de Zopilote (*H. H. Smith*), near Vera Cruz (*W. H. Edwards*¹), Cordova (*Rümeli*).

Two specimens from Cordova we believe to be referable to the species described by Reakirt as *Pieris passion*, and with these we associate a somewhat imperfect male from Venta de Zopilote in the State of Guerrero. The latter is immaculate white both on the upper and under surface of the wings, and in this respect differs from its nearest ally *H. costaricensis*. The females have the neuration just perceptibly traced in pale dusky.

5. *Hesperocharis antipater*. (Tab. LIX. fig. 16.)

Hesperocharis antipater, Druce, Cist. Ent. i. p. 285¹.

Alis lacteis, anticis ad apicem et posticis elongatis venis vix indicatis, subtus fere ut supra.

Hab. GUATEMALA, Choctum (*F. D. G. & O. S.*¹).

The single specimen sent us by our correspondent Mr. Hague from Guatemala, which was described by Mr. Druce, is the only one we have as yet met with of this distinct species. It is a male, and allied, as Mr. Druce says, to *H. leucania* and also to *H. anguitia*. The elongated wings are characteristic, and it thus differs from all its congeners.

6. *Hesperocharis crocea*. (Tab. LIX. fig. 15.)

Hesperocharis crocea, Bates, Ent. Monthly Mag. iii. p. 49 (Aug. 1866)¹; Butl. & Druce, P. Z. S. 1874, p. 357².

Pieris leonoris, Reak. Pr. Ac. Phil. 1866, p. 336 (Nov. 1866)³.

Alis citrinis, anticis ad apicem ipsum vix brunneo limbatis; posticis area exteriore plus minusve aurantiaca: subtus anticis triente basali citrinis, ad apicem et area tota posticarum aurantiis, his macula ad basin rami mediani primi et duabus in costa fuscis ornatis.

♀ mari similis, sed posticis præter basin læte aurantiis.

Hab. MEXICO, near Vera Cruz (*W. H. Edwards*³), Cuesta de Misantla (*M. Trujillo*); COSTA RICA (*Carmioli*¹, *Van Patten*²); PANAMA, Bugaba, Veraguas (*Arcé*), Chiriqui (*Trötsch*).

It is to J. Carmiol that we are indebted for the first specimen, which we now figure, of this species, that described by Mr. Bates; we have since received a small series of examples, but the insect appears to be nowhere common, and Mr. Champion did not meet with it. *H. crocea* and *H. idiotica*, Staud., stand alone in the genus *Hesperocharis*, the characteristic markings of the wings beneath being absent. The Mexican specimens which we have recently received agree closely with the type; the wings are slightly more pointed, but the difference is unimportant. Should, however, they hereafter be considered distinct, Reakirt's name can be used for it.

PIERIS.

Pieris, Schrank, apud Boisduval, Spec. Gén. p. 434; Doubleday, Gen. Diurn. Lep. p. 42.

Perrhybris, Hübner, Verz. bek. Schmett. p. 91.

Leptophobia, Butler, Cist. Ent. i. p. 45.

In Mr. Butler's arrangement of the Pierinæ the genus *Pieris* is restricted to a small group having *P. amathonte* (Cr.) (= *P. demophile*) as its type, a species represented in our region by *P. calydonia*, Bdv. It comes into his second division, having, it is said, "four subcostal nervules in front wings." In our nomenclature of the wing-nervures we consider that the main wing-nervures, which have their origin at the base of the wings, run out to the margin; we therefore count one branch of the subcostal less than Mr. Butler. According, then, to our view, *P. calydonia* has three subcostal branches, but the third is so close to the margin of the wing as to be almost evanescent. *P. protodice* and *P. malenka* also come into Mr. Butler's Division 2; but in the former the third subcostal branch is only present in the female and not in the male, and in the latter it is absent in both sexes. Thus it seems to us that Mr. Butler's system breaks down. So also as regards the number of discoidal nervures (= radial). Mr. Butler bases subdivisions on the presence of one or two such nervures in the primaries, but in our opinion two are always present. And, lastly, as no mention is made of sexual difference in the neurulation, which is certainly present, in many instances often to a considerable extent, we find that Mr. Butler's revision of the genera of the subfamily of Pierinæ cannot profitably be followed.

Though we are unable to arrange this section of the Pierinæ upon Mr. Butler's plan, we have no thoroughly satisfactory system to put in its place; and this can only be based on a complete revision of the whole subfamily. We therefore use the term *Pieris* in a wide sense, and include in it all the species which have the distal margin of the harpagones in more or less simple curves, reserving for *Daptoneura* those species in which the ventral edge of the harpagones is prolonged into a slightly incurved rod.

The subcostal nervure of *P. calydonia* emits two branches before the end of the cell and one close to the apex, the upper radial meets the subcostal; thus there is no upper discocellular. The middle discocellular is less than half the length of the lower; the costal side of the cell is shorter than the median side. The palpi have a long slender terminal joint twice as long as the second joint, which is subelliptical and considerably shorter than the basal joint. The harpagones are simple lobes without hooks or projections of any kind, and the tegumen bears a strong central hook. The bursa copulatrix of the female has a fork-shaped spinous chitinous patch.

Pieris protodice differs from *P. calydonia* in that the second subcostal branch is emitted slightly beyond the end of the cell, the male has no short third branch in the apex, but a very short one is present in the female. This third branch is wholly absent in *P. malenka*, but can be traced in all the other species mentioned below. There is no material difference in the male secondary sexual organs, except that the harpagones in *P. josepha* are rather more pointed at the extremity, and that the male of *P. monuste* has a pair of subanal pencils of hairs.

Regarding the chitinous patch or patches of the bursa copulatrix of the females more diversity prevails; those of *P. notistriga* and *P. malenka* resemble that of *P. calydonia*, that of *P. viardi* consists of two rods lying side by side close together, while those of *P. protodice*, *P. josepha*, and *P. margarita* are of a form not uncommon in Pierinæ, being spinous rods rounded at their extremities and more or less constricted in the middle. *P. elodia* and *P. tenuicornis* appear to be altogether without these patches.

The species we here include in *Pieris* represent nearly all the groups found in South America; the only one of northern type is *P. protodice*, which is common in Mexico, and is found as far south as the highlands of Guatemala.

a. Subcostal nervure of primaries with two branches.

1. ***Pieris malenka*.** (*Pieris alethina*, Tab. LXII. fig. 12 ♀.)

Pieris malenka, Hew. Ex. Butt., *Pieris*, t. 1. ff. 5, 6¹.

Mylothris malenka, Butl. & Druce, P. Z. S. 1874, p. 357².

Mylothris alethina, Butl. Cist. Ent. i. p. 81³; Butl. & Druce, P. Z. S. 1874, p. 357⁴.

Perrhybris ostrolenka, Staud. Ex. Tagf. p. 36⁵.

Alis albis, anticis dimidio basali costæ et apice (introrsum profunde sinuato) nigro-fuscis: subtus anticis fere ut supra sed dilutioribus, ad basin et ad apicem colore fusco flavo tincto; posticis fascia transversa a margine interno ad cellulæ finem fusca, supra eam linea aurantiaca; fascia costam propiore, costa ipsa, margine externo, cum venis omnibus ad fines extimos fuscis, colore albo vix flavo tincto.

♀ alis pallide fuscis, anticis striga cellulari a basi (costam versus arcuata) altera subtus eam fulvis, fascia subapicali maculosa flava, macula discali inter ramos medianos, altera angulum analem propiore flavis fulvo tinctis; posticis area interna fulva, apicem versus profunde trisinuata, fascia transversa indistincta per cellulæ finem fusca: subtus fere ut supra, sed dilutioribus et posticis fascia submarginali apicem versus in maculas elongatas fracta, pallide flava.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{2 3}); PANAMA, Chiriqui⁵, BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1889.

Rio Gatun⁵ (*Ribbe*), Tolé, San Feliz (*Champion*), Veraguas (*Arcé*), Lion Hill Station (*M^cLeannan*).—COLOMBIA; VENEZUELA¹.

There is no perceptible difference that we can trace in the males of this insect, the type of which, as well as that of the female, came from Venezuela; the females differ considerably, but apparently without definite reference to locality. Thus we have a female from Costa Rica hardly differing from the Venezuelan type, but in another example from the same country, the type of Mr. Butler's *M. alethina*, the secondaries are without the dark discal band; a female from Nicaragua has no black spot in the primaries between the median vein and its second branch; the base of these wings in Chiriqui examples is almost wholly black, the inner margin being more or less edged with rufous. The specimen, however, from San Feliz has a long cellular streak of that colour, but this specimen was sent together with one of the ordinary Chiriqui type. In pattern the females resemble *Tithorea helicaon*, *Melinæa scylax*, &c.

In Ecuador, the Amazons valley, and South Brazil a close ally of *P. malenka* is found in *P. pyrrha*, the males of which can be distinguished by having a broader margin to the secondaries. The females, too, have a conspicuous yellow transverse patch on the primaries. If *P. malenka* were divided according to the coloration of the females alone the specimens before us would have to be separated into at least five forms, a course which does not recommend itself to us, and we prefer to consider the species a variable one.

The range of this butterfly extends from Nicaragua through Costa Rica to the State of Panama, and thence to Northern Colombia and Venezuela. It is a lowland species, occurring on the line of the Panama railway and elsewhere not much above the sea-level.

The female figured is from Chiriqui, and agrees with typical specimens of *P. ostrolenka*, Staud.

b. Subcostal nervure of the primaries with three branches, the third rudimentary in one or both sexes.

a'. First subcostal branch emitted before, the second at the end of the cell.

2. *Pieris protodice*.

Pieris protodice, Boisd. & Lec. Lép. Am. Sept. p. 45, t. 17. ff. 1-3¹; Strecker, Cat. Butt. N. Am. p. 76².

Alis albis; anticis macula ad cellulæ finem, altera bifida apicem versus, tertia infra eam inter venam medianam et ramum suum secundum, quatuor fere obsoletis ad apicem ipsum, macula quoque inter venam submedianam et ramum medianum primum angulum analem versus fuscis, omnibus plus minusve indistinctis: subtus fere ut supra sed maculis majoribus.

♀ albidis, ad basin pallide fuscis; anticis macula ad cellulæ finem, altera in margine interno angulum analem prope, serieque duplici ad apicem et in margine externo posticarum confluentibus coloris ejusdem:

subtus anticis fere ut supra, sed dilutioribus et apice flavo tinctis; posticis pallide fusco reticulatis et flavo undique suffusis.

Hab. NORTH AMERICA from Canada southwards².—MEXICO, Presidio, Ciudad in Durango (*Forrer*), Amula (*H. H. Smith*), Puebla (*H. J. Elwes*), Jalapa, Orizaba (*F. D. G.*), Cordova (*Rümelin*); GUATEMALA, Dueñas (*F. D. G. & O. S.*).

This species occurs sparingly in the highlands of Mexico and Guatemala, though in the latter country we only observed it in the neighbourhood of Dueñas, at an elevation of 5000 feet above the level of the sea, and whence we brought home but a single female example. From Mexico we have specimens of both sexes, which agree in every respect with numerous examples from various parts of North America. The larva is said to feed on Cruciferæ.

b'. First and second subcostal branches emitted before the end of the cell.

3. *Pieris calydonia*.

Pieris calydonia, Boisd. Sp. Gén. i. p. 439¹.

Alis albidis, anticis costa ad basin, apice et margine externo decrescente ad angulum analem et introrsum profunde sinuato fuscis, posticis quoque angustissime fusco limbatis: subtus fere ut supra, sed colore fusco pallidiore et linea irregulari a costæ medio ad marginis externi medium coloris ejusdem; posticis ochraceo tinctis, ad costæ basin flavis.

♀ mari similis, sed alis sordide albis, anticis costa pallide fuscescentiore et linea coloris ejusdem per cellulæ finem ad medium marginis externi transeunte: subtus, præsertim in posticis, ochracescentioribus, anticis ad basin flavis, posticis ad costæ basin aurantio tinctis.

Hab. MEXICO, Amula, State of Guerrero, Atoyac (*H. H. Smith*); GUATEMALA, Yzabal, Chuacus, Pacific slope (*F. D. G. & O. S.*), Chacoj, Paraiso (*Champion*); HONDURAS, Ruatan Island (*G. F. Gaumer*), San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); PANAMA, Calobre, Veraguas (*Arcé*), David, San Feliz (*Champion*).—COLOMBIA¹; VENEZUELA.

P. calydonia is a northern form of the widely-spread *P. demophile*, the males of the two insects being very much alike, but the females differing, that of *P. demophile* having a broad fuscous stripe along the inner margin of the primaries, a character not seen in the allied species. Boisduval's description was based upon specimens from Colombia, whence we trace it northwards as far as Southern Mexico, but it is apparently more common in the State of Panama than elsewhere. Some variation is noticeable in the dark outer border to the secondaries. In Guatemalan specimens this dark border is just perceptible, but in examples from the State of Panama it varies in width, being well developed in some specimens and hardly visible in others. This species too, as well as the last-mentioned, is an inhabitant of the hot country, being found near the sea-level up to an elevation of about 2500 feet.

4. *Pieris notistriga*.

Pieris notistriga, Butl. & Druce, Cist. Ent. i. p. 111¹; P. Z. S. 1874, p. 361².

Alis albidis, anticis costa, decrescente in medio, apice et margine externo introrsum valde sinuato et posticis margine externo nigro-fuscis: subtus fere ut supra, sed anticis interdum punctis submarginalibus quinque albis notatis; posticis linea longitudinali per cellulam ad apicem extensa fusca, hinc in margine externo fusco fascia (interdum maculosa) ferruginea includente, posticis et anticarum basi flavo tinctis.

♀ mari similis, sed alis flavescentibus et colore fusco latiore; anticis linea a cellulæ fine ad marginem externum, in margine interno et posticis linea subcostali quoque fuscis: subtus fere ut supra.

Hab. GUATEMALA, Teleman, Mirandilla, Panima, Volcan de Atitlan, San Isidro (*Champion*), Polochic and Chisoy valleys, Forests of Northern Vera Paz (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*); COSTA RICA (*Van Patten*^{1 2}); PANAMA, Calobre (*Arcé*), Bugaba, David, San Feliz, Tolé (*Champion*).

This species is a very variable one both as to size and markings, especially of the front wings, and this applies to both sexes. The dark basal portion of the costa of the primaries, in most cases, is only connected with the dark apex by the dark costa, but in some instances there is an evanescent transverse band passing through the end of the cell towards the chief inner prominence of the dark outer margin. There is thus a tendency to cut off a subapical elongated white spot from the rest of the wing. This transverse band in the males is never quite complete, and sometimes appears as a small spot at the end of the cell; in some females, however, it is well defined and complete, and when in this state the female is hardly distinguishable from that sex of *P. pisonis*. Regarding the dark subcostal band of the secondaries beneath, upon which the distinction between *P. notistriga* and *P. pandosia* was based, we find that it is almost universally present in the former, but in certain examples, chiefly from Mirandilla in Guatemala, it is either absent or evanescent, and this being the case we are not sure that the distinction between these two forms can always be traced. Fresh females have a distinct yellow tinge over the lighter portion of the wings, but we believe this colour fades in specimens that have been exposed to light for some time.

P. notistriga, though widely distributed, does not seem to be a very common species; nevertheless we have a good series of examples from Guatemala and the State of Panama. It is found in the hottest region up to an elevation of about 2000 feet.

5. *Pieris monuste*.

Papilio monuste, Linn. Syst. Nat. i. p. 760¹; Cram. Pap. Ex. t. 141. f. F².

Pieris monuste, Bates, Journ. Ent. i. p. 235³; Strecker, Cat. Butt. N. A. p. 76⁴.

Synchlœ monuste, Butl. & Druce, P. Z. S. 1874, p. 362⁵.

Alis cretaceo-albis, anticis limbo costali angustissime, et margine externo anguste introrsum profunde serrato fuscis: subtus anticis albescentibus, costa anguste apice et posticis omnino ochraceo tinctis, illis nonnunquam pallide fusco indistincte marmoratis.

♀ mari similis, sed anticis macula ad cellulæ finem fusca, marginibus fuscis latioribus, et posticis limbo externo colore eodem maculatis (alis ambabus interdum ochrescentibus, interdum fuscescentibus).

Hab. NORTH AMERICA, Southern States.—MEXICO, Ventanas, Presidio, Mazatlan (*Forrer*), Tepetlapa in Guerrero (*H. H. Smith*), Acapulco (*Markham*), Tampico (*Richardson*), Atoyac, Teapa (*H. H. Smith*), Cordova (*Rümeli, Höge*); GUATEMALA, Motagua, Central and Polochic valleys, San Gerónimo, Dueñas, Pacific Coast (*F. D. G. & O. S.*), Teleman, Dueñas (*Champion*); HONDURAS, Ruatan Island (*G. F. Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁵), San Francisco (*Rogers*); PANAMA, Veraguas (*Arcé*), Lion Hill Station (*M. Leannan*).—SOUTH AMERICA, Colombia to South Brazil; ANTILLES.

A species of very wide range embracing not only the Southern States of North America but also the greater portion of the southern continent as well as the West Indian Islands, being everywhere a common familiar species. In Guatemala its range in altitude extends from the sea-level to a height of 5000 feet in the mountains. The males vary to some extent as to the width of the apical dark border of the primaries, which is widest in South Brazilian examples and narrowest in those from Central America and Mexico. Females vary more than the males, being in some instances of a pale ochreous hue, in others the wings are of a sooty colour; this is especially the case in two examples from Callao given us by Mr J. J. Walker.

6. **Pieris viardi.** (Tab. LXII. figg. 1, 2 ♂, 3, 4 ♀.)

Pieris viardi, Boisd. Sp. Gén. i. p. 439¹.

Mylothris viardi, Butl. & Druce, P. Z. S. 1874, p. 357².

Pieris habra, Doubl. Ann. & Mag. N. H. xvii. p. 22³; Doubl. & Hew. Gen. Diurn. Lep. p. 50, t. 6. f. 1⁴.

Alis albis, anticis mácula ad cellulæ finem, apice et macula marginem externum attingente fuscis, maculis duabus ad apicem albis: subtus anticis fere ut supra, sed macula cellulari majore et colore suo fusco pallidissime; posticis pallide brunneis irregulariter fusco et flavo notatis, maculis duabus ad basin coccineis. ♀ alis fuscis, anticis striga arcuata a basi marginem externum versus extensa, altera maculosa a costa ultra cellulam, maculis duabus ad apicem, tertia ad medium marginis externi, altera duplici ad angulum analem flavis; posticis litura transversa per cellulam, altera angustiore infra eam maculisque tribus ad angulum analem flavis: subtus anticis fere ut supra, sed posticis area interna sordida maculis in costa duabus et area ultra cellulam fuscis undique flavo suffusis.

Hab. MEXICO^{1 3 4}, Tampico (*Richardson*), Cuesta de Misantla (*M. Trujillo*), Atoyac (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Forests of Northern Vera Paz, Yzabal, Polochic valley, Chuacus, San Gerónimo (*F. D. G. & O. S.*), Chiacam, Sabo, Panima, San Gerónimo, Zapote, Mirandilla (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*²).

Boisduval's description of this species was based upon a female from Mexico; Doubleday described the male as *P. habra* from specimens from the same country. Different as these two insects are in coloration there can, we think, be no doubt of their being sexes of the same species. The range of *P. viardi* includes Southern Mexico and Central America as far south as Costa Rica, and though the male is

tolerably common the female is seldom seen. It is for the most part a lowland species, occurring on both sides of the mountain-range of Guatemala up to an elevation of 3000 feet.

We have figured a male from Yzabal and a female from Chuacus in the valley of the Motagua, Guatemala.

7. *Pieris laogore*, sp. n.

P. viardi similis, sed subtus striis aurantiis (nec sulphureis).

♀ *P. viardi* feminae simillima, sed supra maculis et lineis omnibus aurantiis (nec sulphureis).

Hab. MEXICO, Dos Arroyos in Guerrero (*H. H. Smith*), Oaxaca (*Fenochio*).

Mr. Smith secured a single female of this species at Dos Arroyos in the month of September 1888, and with it we now associate a male from Oaxaca which has long been in our collection under the name of *P. viardi*. The female may readily be distinguished from that sex of *P. viardi* by the colour of the spots being orange instead of sulphur; they are, however, precisely of the same shape and position as in the allied species. In the male the differences are exceedingly slight, the striæ on the under surface alone being orange instead of sulphur.

The species appears to be confined to Western Mexico. In Guatemala *P. viardi* is found on both sides of the Cordillera.

8. *Pieris noctipennis*. (Tab. LXII. figg. 5, 6 ♂, 7 ♀.)

Pieris noctipennis, Butl. & Druce, Cist. Ent. i. p. 111¹; P. Z. S. 1874, p. 361²; Butl. Lep. Exot. p. 118, t. 43. f. 7³.

Alis albescentibus, anticis costa anguste et apice cum margine externo (hac decrescente angulum analem versus, et introrsum sinuato) nigro-fuscis, maculis duabus ad apicem albis; posticis anguste fusco limbatis: subtus anticis fere ut supra, sed colore fusco ad apicem dilutius et flavo tincto; posticis fuscis, area discali pallidiore, striga in costa maculisque in margine externo flavis, maculis binis ad basin rubro-aurantiis. ♀ anticis mari similis, sed colore fusco ad apicem latius per marginem internum et ad basin extensa; posticis fuscis, punctis duobus ad apicem albis, area interna anticarum interdum flavescens nec alba.

Hab. COSTA RICA (*Van Patten*^{1 2 3}), Cache (*Rogers*); PANAMA, Chiriqui, Calobre, Veraguas (*Arcé*), Bugaba (*Champion*).

Though the male of this species much resembles that sex of *P. locusta*, the female may readily be distinguished by the secondaries being of a uniform brownish-black colour, hence Mr. Butler's name. Its range includes the southern portion of our country, Costa Rica and the State of Panama; it is a lowland species, Mr. Champion's specimens having been taken at Bugaba.

We have only males of Felder's *P. locusta*, and base our comparison between its female and that of *P. noctipennis* from the description of the former. There are other forms of this *Pieris* in South America which we have not yet satisfactorily determined; an accurate knowledge of the sexes of each is necessary for their proper comprehension.

We have figured a male from Costa Rica and a female from Calobre in the State of Panama.

9. *Pieris josepha*.

Pieris josepha, Salv. & Godm. Ann. Mag. Nat. Hist. ser. 4, ii. p. 150¹.

Pieris josephina, Butl. & Druce, P. Z. S. 1874, p. 361 (nec Hübner)².

Alis cretaceo-albis, anticis macula ad cellulæ finem fusco-nigra: subtus fere ut supra, anticis costa anguste, apice et posticis omnino ochraceo lavatis; posticis quoque macula indistincta fusca ad cellulæ finem, costa aurantia. ♀ alis ochracescentioribus; anticis macula ad cellulæ finem, duabus ultra eam, una in vena mediana, altera infra eam, tertia supra venam submedianam aliisque elongatis ad marginem externum fuscis; posticis venis marginem externum versus indistincte fusco notatis: subtus anticis maculis omnibus (præter ea ad cellulæ finem) minus distinctis.

Hab. MEXICO, Rio Papagaio (*H. H. Smith*), Cordova (*Rümeli*), Oaxaca (*Fenochio*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Central and Polochic valleys, Chuacus (*F. D. G. & O. S.*¹); NICARAGUA; COSTA RICA (*Van Patten*²).

Though we have separated *P. josepha* from *P. josephina*, that is, the continental from the Antillean form of this species, the difference between the two is slight. The outer margin of the secondaries of *P. josepha* is less prominently rounded in both sexes; moreover, the male has no indication of any spot at the end of the cell of the secondaries, and that on the primaries is distinctly smaller. These slight differences are of more value as they distinguish an island from a continental form. *P. josepha* belongs exclusively to our country, and its range extends from Southern Mexico to Costa Rica, but is everywhere rare. In South America *P. bunia* takes its place, a species readily distinguished by the black apex to the wings.

10. *Pieris margarita*.

Mylothris margarita, Hübn. Samml. ex. Schmett. ii. t. 120¹.

Pieris margarita, Bates, Journ. Ent. i. p. 237².

Appias margarita, Butl. P. Z. S. 1872, p. 50³.

Mylothris molpodia, Hübn. Zutr. ex. Schmett. ii. p. 15, ff. 259, 260 ♀⁴.

Pieris ilaire, Godt. Enc. Méth. ix. p. 142 ♂⁵.

Pieris mysia, Godt. Enc. Méth. ix. p. 145 ♀⁶.

Appias poeyi, Butl. P. Z. S. 1872, p. 49⁷; Butl. & Druce, P. Z. S. 1874, p. 361⁸.

Appias castalia, Butl. P. Z. S. 1872, p. 50 (nec Fabr. ?)⁹.

Alis anticis ad apicem elongatis margaritaceo-albis, costa et margine externo angustissime fusco limbatis: subtus fere ut supra, sed posticis ochraceo tinctis, et ad costæ basin flavo notatis.

♀ alis anticis sordide albis, costa late (nisi in medio) et apice cum margine externo pallide fuscis introrsum irregulariter sinuatis; posticis ochracescentioribus, margine externo fuscis: subtus sordide margaritaceo-albis, colore fusco paginæ superioris vix indicato, anticis macula fere obsoleta in margine externo pallide fusca, ad basin flavescens.

Hab. MEXICO, Ventanas (*Forrer*), Ciudad Victoria (*Richardson*), Atoyac (*H. H. Smith*), Tabi in Yucatan (*F. D. G.*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic

and Central valleys, Pacific coast (*F. D. G. & O. S.*), Chiacam, Dueñas (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁸), Rio Sucio, San Francisco, Cache (*Rogers*); PANAMA^{3 7}, Veraguas, Bugaba, Calobre (*Arcé*).—SOUTH AMERICA generally; ANTILLES.

P. margarita is spread over nearly the whole of Tropical America from north-western Mexico to the Argentine Republic, its range including several of the West Indian islands. The males vary as regards the extent to which the apex of the primaries is dark, some specimens having only the margin itself darkened, in others the whole tip is blackish; the females differ in the width of this dark outer border, which in some specimens, on the outer border of the secondaries, is evanescent. These variations are not strictly localized, but, as a rule, Central-American examples have the apex of the primaries white, those from Brazil and the Amazons valley having dark tips; but both forms occur in Central America and also in San Domingo; and intermediate specimens are not wanting throughout the whole of its range, so that we see no tangible grounds for recognizing more than one species. Mr. Butler, in 1872, took quite the opposite view, and gave to every one of the names proposed for this species both males and females, five in all, a distinct specific position, and, moreover, added one of his own, but he entirely omits to state the grounds upon which this separation was made. Mr. Bates found *P. margarita* common everywhere on the Amazons, and he speaks of its rapid and strong flight and extensive migrations, and he adds that the males assemble in great numbers with those of *Callidryas* on the moist margins of the rivers; we found them equally abundant in similar places with the same associates throughout Guatemala, where it is one of the commonest of the Pieridæ.

11. *Pieris elodia*.

Pieris elodia, Boisd. Sp. Gén. i. p. 529¹; Luc. in R. de la Sagra's Hist. Fis. y Pol. Cuba, vii. p. 210, t. 15. ff. 3, 3 a².

Leptophobia elodia, Butl. & Druce, P. Z. S. 1874, p. 360³.

Pieris balidia, Boisd. Sp. Gén. i. p. 529⁴.

Alis cretaceo-albis; anticis limbo costali fusco, apice et margine externo introrsum profunde bisinuato coloris ejusdem: subtus anticis ad apicem et posticis omnino margaritaceo-albis ochraceo suffusis, his macula parva nigra ad cellulæ finem et duabus ad basin ochraceis.

♀ mari similis, sed anticis minus acutis, posticis quoque magis rotundatis.

Hab. MEXICO, Morelia (*F. D. G.*), Omilteme (*H. H. Smith*), Pinal near Puebla (*H. J. Elwes*), Tampico (*Richardson*), Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes*), Atoyac (*H. H. Smith*), Cordova (*Rümeli*), Oaxaca (*Fenochio*); GUATEMALA, Purula, Telemán, Dueñas (*Champion*), San Gerónimo, Polochic and Motagua valleys, Dueñas (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*³), San Francisco (*Rogers*); PANAMA, Chiriqui, Veraguas (*Arcé*).—SOUTH AMERICA, Venezuela, Colombia, Ecuador, and South Brazil.

Pieris elodia has an extensive range over a large portion of South America, being found in South Brazil * and throughout the western portion of the continent, and in our country as far north as Southern Mexico.

In Venezuela an allied form, *P. suadella*, occurs in the province of Caracas, in which the costal half of the cell to the costa itself is blackish, and the base of the wings is freely sprinkled with black scales. This form is distinct enough as shown by the types, but in the neighbourhood of Merida, parts of Colombia, and Eastern Ecuador an intermediate form between *P. suadella* and the true *P. elodia* is found, so that we are doubtful if *P. suadella* will prove a definite species. Specimens from Western Ecuador agree with the typical Mexican form.

It shows but little individual variation throughout this wide range beyond a difference in the width of the dark apical portion of the primaries.

In Guatemala its range extends from near the sea-level in the Polochic valley to an altitude of 5000 feet in the neighbourhood of Dueñas.

12. *Pieris tenuicornis*. (Tab. LXII. figg. 8, 9 ♂, 10, 11 ♀.)

Leptophobia tenuicornis, Butl. & Druce, Cist. Ent. i. p. 110¹; P. Z. S. 1874, p. 360²; Butl. Lep. Ex. p. 116, t. 43. f. 4³.

Alis fusco-nigris; anticis macula ultra cellulam bifida albida, area interna infra venam medianam griseo-cærulea extrorsum canescente; posticis bitriente basali griseo-cærulea: subtus, anticis fuscis area infra venam medianam et macula bifida ultra cellulam albidis, squamis quibusdam coloris ejusdem in costa et ad basin cellulæ; apice et posticis omnino venis fuscis divisus aurantio-flavis.

♀ alis fuscis; anticis plaga irregulari infra venam medianam, altera bifida ultra cellulæ finem griseo-albis; posticis plaga magna cellulari flavescente: subtus fere ut in mari, sed posticis fascia lata fusca marginem externum versus.

Hab. COSTA RICA (*Van Patten*^{1 2 3}), Irazu (*Rogers*); PANAMA, Chiriqui (*Champion, Arcé*), Veraguas (*Arcé*).—COLOMBIA.

This pretty butterfly has a near ally in *P. cæsia* of Ecuador, but that species has a narrower black margin to the secondaries, and the yellow spot in the apex of the primaries beneath is either evanescent or wholly absent. Its range is restricted in our country to Costa Rica and the State of Panama, and it passes southwards into northern Colombia, whence we have an example taken by Salmon at Frontino in the Cauca valley. Mr. Champion's specimens were captured at altitudes between 2500 and 4000 feet above the level of the sea on the Volcan de Chiriqui.

We have figured Costa Rica specimens.

13. *Pieris*, sp.?

We have a small specimen of a *Pieris* from Tampico in Mexico apparently belonging to the group containing *P. oleracea* of Harris from North America, but it is in very bad condition and hence difficult to make out. It is apparently nearly immaculate

* We do not consider *Pieris balidia* of Brazil to be distinguishable from *P. elodia*.

white both above and below, slightly dusky towards the apex of the primaries, and apparently with a small spot at the end of the cell on the secondaries beneath. We await more specimens before attempting to determine its position.

DAPTONOURA.

Daptonoura, Butler, Cat. Fabr. Diurn. Lep. p. 209 ; Cist. Ent. pp. 37, 50, 55, t. 3. f. 3.

This genus contains a small number of species distributed over the greater part of Tropical America ; they are very uniform in their structure and general appearance. The third branch of the subcostal nervure of the primaries is emitted some distance before the apex, and in this respect the species resemble the common *Pieris margarita* of the same region. The anal angle of the secondaries is also produced in a similar way and not rounded as in the majority of more typical *Pieris*. The chief grounds for separating *Daptonoura* from *Pieris* rests on the form of the harpagones of the male, the ventral edge of which is produced into a long, slightly incurved rod, above which the outer margin is undulating with a ragged edge.

1. *Daptonoura panamensis*. (Tab. LXI. figg. 9, 10 ♂, 11 ♀.)

Daptonoura florinda, var. *monstrosa*, Butl. Ann. & Mag. Nat. Hist. ser. 4, xv. p. 224¹.

Daptonoura panamensis, Staud. Verh. k.-k. zool.-bot. Ges. Wien, 1875, p. 94².

Daptonoura panamensis, var. *anceps*, Staud. Verh. k.-k. zool.-bot. Ges. Wien, 1875, p. 95³.

Daptonoura panamensis, var. *chagris*, Staud. Verh. k.-k. zool.-bot. Ges. Wien, 1875, p. 95⁴.

Alis pallide sulphureis, anticis limbo costali, apice anguste, ad ramum medianum primum evanescente, fuscis ; posticis flavescentioribus et margine externo fusco angustissime limbato : subtus multo flavescentioribus et colore fusco rufescentiore, anticis linea transversa ad cellulæ finem.

♀ mari similis, sed flavescentioribus ; anticis macula elongata ad cellulæ finem pallide fusca, margine externo fusco ad angulum analem extensa ; posticis limbo externo indistincte flavo maculato : subtus ut supra, sed posticis flavo-aurantiis.

Hab. PANAMA, Bugaba¹, Veraguas (*Arcé*), David, Bugaba¹, Volcan de Chiriqui (*Champion*), Paraiso Station (*Hughes*¹).

Mr. Butler considered this to be a variety of *P. florinda*, but as we have several examples of both sexes showing that each form keeps its character with precision their distinctness as species seems obvious, and this is further proved from the fact of the two forms having almost precisely the same range. Mr. Butler's type was obtained by Arcé at Bugaba, and is the male specimen figured ; the female came from Paraiso on the Isthmus of Panama. Though Mr. Butler's name *monstrosa* has a slight priority over Dr. Staudinger's *panamensis*, we give precedence to the latter as the former was only used in a varietal or subspecific sense.

2. *Daptonoura florinda*. (Tab. LXI. fig. 12.)

Daptonoura florinda, Butl. Ann. & Mag. Nat. Hist. ser. 4, xv. p. 224¹.

Daptonoura chiricana, Staud. Verh. k.-k. zool.-bot. Ges. Wien, 1875, p. 95².

♂ *D. panamensi* similis, sed alis flavis (nec sulphureis).

♀ feminae *monstrosæ* similis, sed anticis flavis aurantio suffusis, posticis aurantiis.

Hab. PANAMA, Volcan de Chiriqui ² (*Champion*), Bugaba ¹, Veraguas (*Arcé*).

This and the preceding species both belong to the section of *Pierinæ* of which *P. lycimnia* is the oldest known form. The pale yellow colour of the male is of the same tint as that of *P. polyhymnia* of Colombia, but that sex of *D. florinda* may readily be recognized by its dark apex and outer borders. The specimens which were described by Mr. Butler were obtained by Arcé at Bugaba, and Mr. Champion found it on the slopes of the Volcan de Chiriqui as high as from 4000 to 5000 feet.

Dr. Staudinger has kindly lent us the types of the species and varieties described in his paper on new South-American butterflies cited above, so that we are enabled to compare them with Mr. Butler's types, and we have no doubt that we have rightly assigned to them their respective positions.

A specimen from Veraguas is figured.

3. *Daptonoura isandra*. (Tab. LXI. figg. 13, 14 ♂.)

Pieris isandra, Boisd. Sp. Gén. i. p. 490 ¹.

Daptonura isandra, Butl. P. Z. S. 1872, p. 52 ².

Alis cretaceo-albis, anticis ad apicem angustissime fusco limbatis; subtus anticis macula ad cellulæ finem elongata pallide brunnea ad apices et posticis omnino ochraceo-flavis.

♀ mari similis, sed alis ochraceis (nec cretaceo-albis), subtus area apicali et posticis omnino croceis.

Hab. MEXICO ¹, Teapa in Tabasco (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Tucuru, Panzos, San Gerónimo (*Champion*).

Boisduval's description of this species was based upon a specimen from Mexico. The only examples we have from that country are from the provinces of Tabasco and Northern Yucatan; but in Guatemala it is not an uncommon species in Vera Paz, especially in the valley of the Polochic river, where it occurs from near the sea-level to a height of about 3000 feet. Mr. Butler states that it is found not only in Nicaragua but also in Jamaica and even Brazil, but it is unknown to us from any point south of Guatemala.

B. Terminal joint of the palpi very short in one or both sexes.

CALLIDRYAS.

Callidryas, Boisduval, Sp. Gén. i. p. 605; Doubleday, Gen. Diurn. Lep. p. 66 (partim); Butler, Lep. Ex. p. 155.

Mr. Butler split up the old genus *Callidryas* into four genera which we have no difficulty in recognizing, and we even carry his subdivision further by separating *C. trite* from the rest of his genus *Phæbis*.

Adult males representing the species of each of these genera may readily be distinguished as follows:—

- A. Terminal joint of palpi very short in both sexes.
 - a. Base of inner margin of primaries furnished with long hairs, a patch of densely felted scales above the subcostal nervure of secondaries . . . *Catopsilia*.
 - b. Base of inner margin of primaries simple.
 - a'. A patch of densely felted scales between the costal and subcostal nervures of secondaries above and a corresponding patch between the median and submedian of the primaries beneath . . . *Callidryas*.
 - b'. A pencil of hairs below the subcostal nervure of secondaries and a patch of densely felted scales above the subcostal . . . *Rhabdodryas*.
 - c'. A pencil of hairs below the subcostal nervure of secondaries, but no patches of felted scales on either wings . . . *Phæbis*.
- B. Terminal joint of palpi in female much longer than in the male . . . *Aphrissa*.

The first of these takes the whole of the Old-World species, with which we do not deal in the present work.

The divisions in the second set of genera are all more or less borne out by the secondary male characters, except that *Phæbis* and *Callidryas* seem more closely connected with each other than they are to either *Rhabdodryas* or *Aphrissa*. The wing-neuration in all these genera is very uniform, and affords no tangible generic characters. The subcostal nervure emits three branches; two before the end of the cell and one a little beyond it. There is no upper discocellular, the upper radial meeting the subcostal beyond the cell. The terminal joint of the palpi, except in the female of *Aphrissa*, is very short, the second joint subelliptical and about half the length of the basal joint. The harpagones in *C. philea* have the ventral edge produced into a long rod, and the dorsal edge bears in the middle a strongly recurved slightly dentate process; attached to the inner surface is a strong lobe, expanded towards its distal end and set with long strong spines. In *C. eubule* the harpagones are very similar, but the ventral edge is not so prolonged; moreover, the patches of densely packed scales in the wings of the latter species are not nearly so well defined as they are in *C. philea*.

1. *Callidryas philea*.

Papilio philea, Linn. Syst. Nat. i. p. 764¹; Cram. Pap. Ex. t. 173. ff. E, F².

Callidryas philea, Reak. Proc. Ent. Soc. Phil. ii. p. 353³; Butl. & Druce, P. Z. S. 1874, p. 360⁴; Butl. Lep. Ex. p. 92, t. 35. f. 1-4⁵; W. H. Edw. Trans. Am. Ent. Soc. 1884, p. 262⁶.

Papilio aricye, Cram. Pap. Ex. t. 94. ff. A, B⁷.

Papilio melanippe, Cram. Pap. Ex. t. 361. ff. E, F⁸.

Mancipium fugax argante, ♀, Hübn. Samml. ex. Schmett. t. 145. ff. 3, 4⁹.

Alis læte flavis, anticis plaga per cellulam ultra venam medianam extensa; posticis marginibus externis late aurantiis: subtus flavo- aut aurantio-ochraceis plus minusve maculis irregularibus fuscis notatis, maculis geminis ad cellularum fines argenteo-albis et ferrugineo cinctis.

♀ (forma 1) alis flavis, anticis aurantio ad cellulæ finem leviter tinctis, ad apicem fusco limbatis, maculis in

marginē externo ad venarum fines, serie altera irregulari interiore maculaque ad cellulæ finem fuscis; posticis area distali late aurantiis ad marginem externum in venis fuscis: subtus flavo-ochraceis maculis ad cellularum fines geminis albis ferrugineo cinctis, aliisque rufescentibus per aream totam diffusis.

♀ (forma 2) alis supra sordide ochraceis maculis ut in forma 1.

Formis aliis intra 1 et 2.

Hab. MEXICO, Ventanas (*Forrer*), Rincon, Atoyac (*H. H. Smith*), Cordova (*Rümeli*), Oaxaca (*Fenochio*); GUATEMALA, Polochic valley, San Gerónimo, Chuacus, Central valley, Pacific coast (*F. D. G. & O. S.*); HONDURAS, San Pedro (*Whitely*); NICARAGUA, Chontales (*T. Belt*); COSTA RICA (*Van Patten, Carmiol*); PANAMA, Chiriqui, Calobre, Veraguas (*Arcé*).—SOUTH AMERICA to SOUTH BRAZIL.

This is an exceedingly well-marked species of very wide range, being found occasionally in the Southern States of North America, and uninterruptedly from Mexico to South Brazil. The male is readily known by the orange patch on the primaries and the orange border of the secondaries, and presents no tangible points of variation. The female varies in the extent of the red border of the secondaries. *Papilio aricye* of Cramer represents the form in which the red band is most pronounced, and *P. melanippe* the least. Both forms occur indiscriminately wherever the species is found.

C. philea occurs in abundance with its congener *C. eubule* and with *Phæbis argante* &c., from the sea-level up to an elevation of 4000 or 5000 feet. The females, according to Mr. Bates, frequent flowers in open semicultivated places. There are two Antillean species allied to *C. philea*, viz. *C. thalestris* and *C. avellaneda*; both are found in Cuba, and the former also in the island of Haiti. The males of both these species have a black spot at the end of the cell by which they are easily distinguished from *C. philea*.

2. *Callidryas eubule*.

Papilio eubule, Linn. Syst. Nat. i. p. 764¹; Cram. Pap. Ex. t. 120. ff. E, F²; Smith, Abb. Hist. Nat. Lep. Georg. p. 9, t. 5³.

Callidryas eubule, Bates, Journ. Ent. i. p. 239⁴; Reak. Proc. Ent. Soc. Phil. ii. p. 351⁵; Butl. Lep. Ex. p. 58, t. 22. ff. 7–10⁶; W. H. Edw. Trans. Am. Ent. Soc. 1884, p. 261⁷.

Papilio sennæ, Linn. Syst. Nat. i. p. 764⁸.

Callidryas sennæ, Butl. Lep. Ex. p. 59, t. 23. ff. 1–4⁹; W. H. Edw. Trans. Am. Ent. Soc. 1884, p. 262¹⁰.

Papilio marcellina, Cram. Pap. Ex. t. 141, f. C¹¹.

Callidryas drya (Fabr.), Reak. Proc. Ent. Soc. Phil. ii. p. 352¹²; Butl. Lep. Ex. p. 61, t. 23. ff. 5–8¹³.

Callidryas yamana, Reak. Proc. Ent. Soc. Phil. ii. p. 352¹⁴.

Alis flavis, venis ad margines externos vix fusco tinctis, subtus interdum flavis fere immaculatis, frequenter ochraceis rufo irroratis et irregulariter maculatis, maculis geminis argenteo-albis ad cellularum fines ferrugineo cinctis.

♀ (forma 1) mari similis, sed anticis costa et margine externo angustissime fusco limbatis, in margine externo maculatis, macula ad cellulæ finem coloris ejusdem: subtus pallidioribus maculis ad cellularum fines majoribus pagina tota undique sparsim ferrugineo maculata.

Forma altera alis pallide gilvis, marginibus externis fusco maculatis.

Formæ alteræ alis rufo-aurantiacis aut ferrugineis.

Hab. NORTH AMERICA, Southern States.—MEXICO, Pinos Altos (*Buchan-Hepburn*), Ventanas, Presidio, Mazatlan, Tres Marias Islands (*Forrer*), Rio Papagaio, Rincon, Tierra Colorada, La Venta, Acaguizotla (*H. H. Smith*), Acapulco (*Markham*), Oaxaca (*Fenochio*), Cordova (*Rümeli*), Cuesta de Misantla (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic valley, San Gerónimo, Central valleys, Chuacus, Pacific coast (*F. D. G. & O. S.*), Chacoj, Chiacam, San Gerónimo, Las Mercedes (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*T. Belt*); COSTA RICA (*Van Patten*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Veraguas, Calobre (*Arcé*), Lion Hill Station (*M'Leannan*).—SOUTH AMERICA generally to Argentine Republic and Chili; ANTILLES; GALAPAGOS ISLANDS.

Linnæus's description of *Papilio eubule* was based upon a picture in 'Edwards's Gleanings of Natural History,' ii. p. 199, t. 304, which represents a female from South Carolina. *P. sennæ* of Linnæus was based upon figures in Sloane's 'Natural History of Jamaica,' t. 236. f. 11–12, and Merian's 'Insects of Surinam,' t. 58. There is nothing in the descriptions and plates to indicate that they refer to more than one species. North-American writers consider that two species of *Callidryas* are found within the limits of the United States, and in so doing they follow Mr. Butler; but the evidence on this point requires considerably strengthening before we can adopt this view, for differences of colour and variety of pattern are of little value in this genus, as variation by no means follows definite distribution. For the same reason we consider *Papilio drya* of Fabricius, as figured by Mr. Butler, to be only an extreme form, in which the markings are reduced to a minimum. *C. yamana* of Reakirt appears to have been based upon a light-coloured female of this species. Like *Phæbis argante* and *Aphrissa statira* this species swarms in open country about pools or damp places or on the margins of streams, and ranges from the sea-level to an elevation of 4000 or 5000 feet in the mountains. The caterpillar feeds on species of *Cassia*, and is thus represented in Smith and Abbot's beautiful work.

PHŒBIS.

Phæbis, Hübner, Verz. bek. Schmett. p. 98; Butler, Lep. Ex. p. 155.

This is the only section of the old genus of *Callidryas* in which the male has a pencil of hairs within the cell, and no closely packed patch of scales between the costal and subcostal nervures. The genus is divisible into two groups—one, of which *P. rurina* is typical, has the anal angle of the secondaries prolonged, the other (*P. argante*) has this portion of the wing rounded. The secondary male organs are very similar in both groups; the harpagones of *P. argante* have the ventral edge prolonged into a rod, and two dentate projections along the dorsal edge.

1. *Phæbis rurina*.

Callidryas rurina, Feld. Wien. ent. Mon. v. p. 82¹; Reise Nov., Lep. p. 194, t. 26. ff. 9-11²; Butl.

Lep. Ex. p. 76, t. 29. ff. 5-8³.

Phæbis rurina, Butl. & Druce, P. Z. S. 1874, p. 361⁴.

Callidryas virgo, Butl. Trans. Ent. Soc. 1870, p. 9⁵; Lep. Ex. p. 75, t. 29. ff. 1-4⁶.

Phæbis virgo, Butl. & Druce, P. Z. S. 1874, p. 361⁷.

Phæbis intermedia, Butl. Cist. Ent. i. p. 81; Lep. Ex. p. 153, t. 55. ff. 5-8⁸; Butl. & Druce, P. Z. S. 1874, p. 361⁹.

Alis sulphureis, anticis dimidio proximo posticis ad angulum analem aurantio tinctis: subtus aurantiis sparsim saturate ferrugineo irroratis, maculis duabus ad cellularum fines, eis posticarum medialiter argenteis.

♀ alis aut sordide albis aut flavidis, posticis margine externo late ferrugineo, anticis macula nigra ad cellulæ finem.

Hab. MEXICO, Rincon (*H. H. Smith*), Cuesta de Misantra (*F. D. G.*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Oaxaca (*Fenochio*); GUATEMALA, Pacific coast, Dueñas, Central valleys, Polochic valley (*F. D. G. & O. S.*), Cahabon (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴), Irazu (*Rogers*); PANAMA, Chiriqui (*Ribbe, Champion*). —SOUTH AMERICA, Venezuela to Bolivia.

In treating of the members of this genus we have throughout admitted that the females are liable to a considerable amount of variation both as regards the general colour of the upper surface of the wings and the intensity of the markings thereon. According to this view *P. rurina*, as regards its females, shows great diversity. One extreme form has the upper surface of the wings of a uniform dirty white with a large black spot at the end of the cell of the primaries, and a very narrow dark apical margin; in the other extreme the wings are pale yellow, and the secondaries have a broad outer border of deep rufous. Between these two extremes we have many intermediate gradations. The pallid females are *P. virgo* (Butler)⁵, the rufous-bordered females are the typical *P. rurina* (Felder)¹, and an intermediate specimen formed the type of Mr. Butler's *P. intermedia*. All these forms we propose to unite under the name of *P. rurina*; but at the same time we note that in the males the orange colour of the basal portion of the primaries and the outer portion of the secondaries is not so intense in northern as it is in typical and Venezuelan examples, though specimens from various parts of our country show some diversity in this respect, and we do not therefore attach much importance to it.

Regarding the status of the South-Brazilian and Argentine form of this *Phæbis*, to which the name *P. neocypris* of Hübn. seems properly applicable (= *P. cypris*, Fabr., nec Cram., = *P. bracteolata* et *P. irrigata*, Butler), we are in some doubt as to its relationship with *P. rurina*, or whether we have more than one species represented under this name; but we think that the females in this southern form have their own set of varieties, and that one with dark rufous border to the hind wings is not included

amongst them, and for these reasons we believe that the southern and northern forms are specifically distinct, though their ranges overlap in Bolivia.

P. rurina in our country has a wide range extending from the sea-level to an elevation of 5000 feet and upwards in the mountains. It is one of the species which helps to form the dense masses of butterflies which congregate round pools and wet places and on river banks.

2. *Phœbis argante*.

Papilio argante, Fabr. Syst. Ent. p. 470¹.

Callidryas argante, Bates, Journ. Ent. i. p. 238²; Reak. Proc. Ent. Soc. Phil. ii. p. 353³; Butl. Lep.

Ex. p. 119, t. 44. ff. 1–4⁴.

Mancipium fugax argante, Hübn. Saml. ex. Schmett. i. t. 145. ff. 1, 2⁵.

Papilio cipris, Cram. Pap. Ex. t. 99. ff. E, F⁶.

Phæbis cypris, Hübn. Samml. ex. Schmett. ii. t. 131⁷.

Papilio hersilia, Cram. Pap. Ex. t. 173. ff. C, D⁸.

Callidryas hersilia, Butl. Lep. Ex. p. 106, t. 39. ff. 7–10⁹.

Callidryas agarithe, Luc. in R. de la Sagra's Hist. Fis. y Pol. Cuba, Ins. t. 15. ff. 4–4 a, ♂¹⁰.

Callidryas minuscula, Butl. Lep. Ex. p. 120, t. 44. ff. 9, 10¹¹.

Alis supra aurantiis punctis nigris in margine externo: subtus flavescentioribus ferrugineo irregulariter irroratis, anticis linea bifracta ab apice ad marginem internum maculis duabus ad cellulæ finem plus minusve distinctis; posticis quoque maculis duabus ad cellulæ finem notatis, interdum medialiter argenteis interdum evanescentibus.

♀ a mari differt alis supra aut flavidis aut gilvis maculis in margine externo majoribus interdum confluentibus anticarum apice nigricante macula ad cellulæ finem aliisque discalibus nigricantibus.

Hab. NORTH AMERICA, Florida, Texas. — MEXICO, Ventanas, Presidio, Mazatlan (*Forrer*), Dos Arroyos, Rincon, La Venta, Acaguizotla (*H. H. Smith*), Orizaba (*F. D. G.*), Atoyac (*H. H. Smith*), Cordova (*Rümelin*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic valley, Chuacus, Central valleys, Dueñas, Pacific coast (*F. D. G. & O. S.*), Cahabon, Chacoj, Panima, Cubulco (*Champion*); HONDURAS, San Pedro (*Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Rio Sucio (*Rogers*); PANAMA, Volcan de Chiriqui, Veragua (*Arcé*), Bugaba, Tolé (*Champion*), Panama Railway (*M'Leannan*).—SOUTH AMERICA generally to South Brazil.

The true *P. argante* of Fabricius, of which the type is in the British Museum, is, no doubt, that represented by Mr. Butler under this name⁴; the outer margin of the primaries is marked with a black spot at the end of each nervule, and the spots on the under surface of the secondaries at the end of the cell are evanescent and with no silvery tint in the centre. Between this form and that represented by *P. hersilia*, in which the outer margin of the primaries is uninterruptedly black, and the spots on the secondaries distinctly silvery, we find every intermediate gradation in the series before us; and failing other diagnostic characters it is impossible to separate *P. argante* from *P. hersilia*, as Mr. Butler has endeavoured to do.

Of the names mentioned above, Hübner's figure of *M. f. argante* is an excellent representation of the typical form⁵, his female on the same plate being taken from a male of *C. philea*. *P. cypris* (Cram.)⁶ represents a female with orange wings, a common type in this sex. *Phœbis cypris* of Hübner⁷ also represents two females—one of the orange form, and the other of the equally common yellow form. The drawing of *C. agarithe* of Lucas¹⁰ is taken from a male of this species, his female representing that sex of the true *agarithe*. *C. minuscula* of Butler¹¹, said to be from Cuba, is nothing but a dwarfed individual of the ordinary type. We have other very similar small specimens from other parts of the range of this species.

P. argante is excessively common in all open places throughout our region from the sea-level to an altitude of 5000 or 6000 feet. It is one of the species which congregate by pools of water or wet places on highroads or river-banks.

3. *Phœbis agarithe*.

Callidryas agarithe, Boisd. Sp. Gén. p. 623¹; Lucas in R. de la Sagra's Hist. Fis. y Pol. Cuba, Ins. vii. p. 212, t. 15. ff. 4*b*, 4*c*²; Butl. Lep. Ex. p. 92, t. 45. ff. 1–4³; W. H. Edwards, Trans. Am. Ent. Soc. 1884, p. 262⁴.

Alis aurantiis, margine externo minutissime nigro punctato: subtus flavescentioribus, maculis indistinctis fuscis irregulariter notatis; anticis linea fusca ab apice ad marginem internum recta, integra, macula ad cellulæ finem alteris duabus in posticis, his interdum introrsum argenteis.

♀ alis gilvis, interdum aurantiis interdum flavescentibus, maculis marginalibus majoribus, anticis macula ad cellulæ finem et linea recta paginæ inferioris obviis.

Hab. NORTH AMERICA, Texas. — MEXICO, Presidio, Ventanas (*Forrer*), Tepetlapa (*H. H. Smith*), Ciudad Victoria, Tampico (*Richardson*), Cuesta de Misantla, Jalapa (*F. D. G.*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Yucatan (*mus. Staud.*); GUATEMALA, Polochic valley, Central valleys, and Dueñas (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*).—COLOMBIA; VENEZUELA and ANTILLES.

This species is clearly distinct from *P. argante*, which it resembles at first sight. The line extending from the apex of the primaries towards the inner margin on the underside in the male, and usually on both sides in the female, is in this species straight and unbroken, but in *P. argante* is divided into several segments which are not arranged in line. As a rule the male is marked on the under surface with fairly conspicuous markings, but with them we find interspersed individuals which are nearly immaculate with but the faintest indication of the characteristic line of the primaries. These spotless individuals occur throughout the range of the species, and are not peculiar to any definite locality. The females present the usual diversity of colour; the pale drab of some individuals seems to be more common in the northern range of the species. In South America *P. agarithe* seems confined to the north-western portion. In the Antilles it is probably almost universally distributed. We have specimens from Dominica, and it occurs in the large islands of Haiti, Cuba, and Jamaica; it is also found in New Providence.

Mr. Butler's figures seem to us to be much overcoloured ; the male, so far as our experience goes, shows no such contrast of colour as is there depicted.

RHABDODRYAS, gen. nov.

Mr. Butler includes *R. trite* in the second section of his genus *Phæbis*, resting his character upon the pencil of hairs which proceeds from the upper portion of the cell close to the subcostal nervure of the secondaries, but he overlooked the existence of a patch of closely packed scales between the costal and subcostal nervures. These characters combined serve to separate *R. trite* from *Callidryas philea* and its allies ; moreover the spine-bearing lobe on the inner side of the harpagones appears directed upwards rather than downwards ; there is a second shorter similar lobe at the base of those organs.

1. *Rhabdodryas trite*.

Papilio trite, Linn. Mus. Ulr. p. 248¹ ; Syst. Nat. i. p. 763² ; Cram. Pap. Ex. t. 141. ff. C, D³.

Callidryas trite, Butl. Lep. Ex. p. 121, t. 45. ff. 5–8⁴ ; Bates, Journ. Ent. i. p. 239⁵.

Phæbis trite, Butl. & Druce, P. Z. S. 1874, p. 361⁶.

Alis sulphureis, fere immarginatis : subtus gilvo-sulphureis, sericeo paullo micantibus ; anticis linea recta ab apice ad marginem internum fulva, posticis quoque linea recta ab apice per cellulæ finem ad marginem internum fulva ornatis, his quoque lineis obsoletis discalibus fulvis notatis.

♀ mari similis, sed alis pallide gilvis, marginibus et anticarum apicibus stricte nigricante limbatis.

Hab. MEXICO, Atoyac (*H. H. Smith*), Cordova (*Rümelî*) ; GUATEMALA, Dueñas, Pacific coast (*F. D. G. & O. S.*) ; NICARAGUA, Chontales (*Belt*) ; COSTA RICA (*Van Patten*⁶) ; PANAMA, Veraguas, Calobre (*Arcé*), Tolé (*Champion*).—SOUTH AMERICA to SOUTH BRAZIL ; DOMINICA.

R. trite is a very definite species, and may at once be distinguished by a transverse line on the underside, crossing the primaries from near the apex nearly to the inner margin, and a similar line across the secondaries ; no other species having this character.

Its distribution is wide like that of its congeners, and extends from Mexico to South Brazil ; it is also found in the island of Dominica. It is, however, not so abundant as the species of *Callidryas* and the allied genera, and females are quite rare.

APHRISSA.

Aphrissa, Butler, Lep. Ex. p. 155.

The terminal joint of the palpi of the male in this genus resembles that of the members of the same sex of the allied genera, being small, and not more than a third of the length of the middle joint. In the female the terminal joint is long and subcylindrical, and as long as the second joint. This sexual difference of these organs is not found in any other species of the allied genera. The secondary male organs also show peculiarities : the harpagones have attached to the middle of the dorsal edge a large triangular projection, the outer edge of which is deeply, but irregularly, serrate ; at

the place where the triangle is attached to the harpagones there is a smaller projection also serrate on its outer edge; the ventral edge of the harpagones is produced to a point, the upper edge of the projection forming an irregular lobe with a slightly serrate edge.

The primaries have a well-defined patch of closely felted scales on the under surface in the angle between the median and submedian nervures, and there is a corresponding patch on the upper surface of the secondaries between the costal and subcostal nervures.

1. *Aphrissa statira*.

Papilio statira, Cram. Pap. Ex. t. 120. ff. C, D¹.

Callidryas statira, Bates, Journ. Ent. i. p. 239²; Butl. Lep. Ex. p. 142, t. 51. ff. 1-4³.

Aphrissa statira, Butl. & Druce, P. Z. S. 1874, p. 360⁴.

Callidryas neleis, Bdv. Sp. Gén. p. 629⁵; Butl. Lep. Ex. p. 145, t. 52. ff. 1-4⁶.

Callidryas boisduvalii, Feld. Wien. ent. Mon. v. p. 82⁷.

Callidryas jada, Butl. Trans. Ent. Soc. 1870, p. 11⁸; Lep. Ex. p. 144, t. 51. ff. 7-10⁹.

Alis sulphureis, anticarum dimidio distali posticis margine externo lato (angulo anali excepto) sericeo albidis: subtus gilvis immaculatis, anticis ad basin flavescens.

♀ mari similis, margine sericeo absente, anticis macula ad cellulæ finem costa, præter basin, apice et margine externo nigricantibus, posticis quoque in margine externo nigricante stricte limbatis: subtus anticis maculis quibusdam ad apicem pallide ferrugineis, posticis quoque maculis discalibus ejusdem coloris notatis.

Var. *a*. Alis gilvis fere unicoloribus (= *C. boisduvalii*, Felder).

Var. *b*. Alis fere aurantiis (= *C. jada*, Butler).

Var. *c*. Alis sulphureis fere unicoloribus (= *C. neleis*, Boisduval).

Hab. MEXICO, Cordova (*Rümel*), Atoyac (*H. H. Smith*); GUATEMALA, Pacific coast, Dueñas, Central valleys, Polochic valley (*F. D. G. & O. S.*), Chacoj (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴); PANAMA, Chiriqui, Calobre (*Arcé*), Lion Hill Station (*M. Leannan*).—SOUTH AMERICA generally to South Brazil.

On comparing typical males of *A. statira* with the various supposed species called *Callidryas boisduvalii*, *C. neleis*, and *C. jada* great differences are observable in the general tint of the upper surface of the wings, and this extends to both sexes; but on amassing a large series of specimens it is not difficult to select examples blending all these forms together. Though they are not confined to any special localities, occurring indiscriminately nearly throughout the whole range of the species, we note, however, that on the whole the variation is greater in Colombia, Central America, and Mexico, while in the Amazons valley the typical form predominates.

A. statira is an exceedingly abundant species wherever it is found. Mr. Bates says² that in the Amazons valley the females are confined to the thin parts of the forest and its margins, where they may be seen depositing their ova on low trees of species of *Mimosa*. The males congregate by myriads in company with an almost equal number of *C. eubule*, and a few of all the other species of the genus, on the moist sand or mud on the river-bank. In the height of the dry season (October) very extensive migrations take place. He once travelled with a fair wind on the Lower Amazons

about eighty miles between sunrise and sunset, and during the whole of the journey the air teemed with these butterflies, all crossing the river (there from three to five miles broad) in one direction, viz. from north to south. On the Upper Amazons they settle on the moist sands in dense masses of many yards square, all with wings upright, and closely packed together.

Mr. Butler's representation of *C. jada*⁹ is far too highly coloured; the wings are of only a slightly more ochraceous tint than those of the form called *C. boisduvalii*, the basal half being slightly darker than the outer half.

ANTEOS.

Anteos, Hübner, Verz. bek. Schmett. p. 99 (1816).

We think it advisable to separate the American species usually called *Gonepteryx clorinde* and *Gonepteryx mæricula* from the Old World members of *Gonepteryx*, and for them Hübner's name *Anteos* seems the oldest available, and from the three species cited by him we select the second, *A. mæricula*, as the type.

Anteos differs from *Gonepteryx* in several particulars. The costal margin of the primaries has a strongly serrate edge caused by closely-set dentate processes along the costal margin; this margin too is a simple curve, and not concave in the middle as in *Gonepteryx rhamni*. The second subcostal branch is emitted close to the end of the cell instead of some way before it, the middle discocellular is not much shorter than the lower instead of being only a third of its length. There are also characters in the male secondary organs. The harpagones are much less pointed, and carry a lobe along the dorsal edge and another internal lobe near the middle of the ventral edge. *G. rhamni* has a simple dependent lobe from near the end of the dorsal edge.

Anteos contains the two species mentioned below, which are both common in our country, one of them, *A. clorinde*, having also a wide range in South America.

1. *Anteos clorinde*.

Colias clorinde, Godt. Enc. Méth. ix. Suppl. p. 813¹.

Rhodocera clorinde, Boisduval, Sp. Gén. i. p. 599, t. 19. f. 4².

Amynthia clorinde, Butler & Druce, P. Z. S. 1874, p. 360³.

Anteos mæricula, Hübn. Samml. ex. Schmett. iii. t. —⁴.

Alis cretaceo-albis, anticis plaga magna costali per cellularum finem aurantia, puncto ad cellularum fines nigro, aurantio circumcincto: subtus dimidio costali anticarum et posticis undique pallide viridi irroratis.

♀ mari similis, sed plaga aurantia anticarum magis diffusa et punctis ad cellularum fines majoribus.

Hab. MEXICO, Pinos Altos (*Buchan-Hepburn*), Orizaba (*H. J. Elwes*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Oaxaca (*Fenocchio*); GUATEMALA, Polochic and Motagua valleys, San Gerónimo (*F. D. G. & O. S.*), Cahabon, Purula, Dueñas (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*³), Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé*).—COLOMBIA; VENEZUELA; BOLIVIA; EASTERN BRAZIL.

This species may be at once distinguished from *A. mærule* by the colouring of the upper surface of the wings, which instead of being of a clear lemon-yellow is chalky white with a distinct orange patch extending from about the middle of the costa over the distal half of the cell. In our country its range is very similar to that of *A. mærule*, but in South America it extends far beyond Colombia, and is found in Bolivia and Eastern Brazil. Curiously enough neither of these species, nor indeed any member of the allied genera, are found in the Amazons valley.

All South-American specimens, with hardly an exception, have the orange spot of the primaries of a rather more lemon tint.

2. *Anteos mærule*.

Papilio mærule, Fabr. Syst. Ent. p. 479¹; Don. Ins. Ind. t. 27. f. 1².

Rhodocera mærule, Boisd. Lec. Léop. Am. Sept. p. 71, t. 23³; Boisd. Sp. Gén. i. p. 600⁴.

Amyntia mærule, Butl. & Druce, P. Z. S. 1874, p. 360⁵.

Rhodocera gueneana, Boisd. Sp. Gén. i. p. 601⁶.

Rhodocera lacordairei, Boisd. Sp. Gén. i. p. 600⁷; Léop. Guat. p. 10⁸.

Papilio ecclipsis, Cram. Pap. Ex. t. 129. ff. A, B⁹.

Alis citrinis, anticis puncto ad cellulæ finem nigro: subtus sericeo-viridi-flavis obscure brunneo irroratis, punctis ad cellularum fines gilvo-ferrugineis.

♀ mari similis, sed alis pallidioribus aut gilvis (interdum apicibus et margine externo fusciscentibus); posticis puncto ad cellulæ finem aurantiaco.

Hab. MEXICO, Ventanas, Presidio (*Forrer*), Acapulco (*Markham*), Jalapa (*F. D. G.*), Cuesta de Misantla (*M. Trujillo*), Orizaba (*H. J. Elwes*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Tabi in Yucatan (*F. D. G.*); GUATEMALA, San Gerónimo, Panima, Chiacam (*Champion*), Motagua, Polochic and Central valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁵).—COLOMBIA; HAITI; JAMAICA.

The female of *A. mærule* varies as to its colour; some closely resemble the male, others are of a dull orange, others again are drab. Some of these again have the apex of the primaries, and the outer border as well as the ends of the nervures, fuscous. This variation, we believe, has given rise to the supposition that there is more than one species of this form, and we believe that *Rhodocera gueneana* of Boisduval⁶ was based upon a yellow female of *A. mærule*, in which the glandular patch of scales on the secondaries is absent. That Boisduval was at fault respecting the sexes of this species is shown by his remark in his *Lepidoptera of Guatemala*, in which he suggests that *A. clorinde* may be the female of his *Rhodocera lacordairei*. *A. mærule* is common throughout the whole of our region up to an elevation of from 4000 to 5000 feet in the mountains; in South America we only know of its occurrence in Colombia.

KRICOGONIA.

Kricogonia, Reakirt, Proc. Ent. Soc. Phil. ii. p. 355¹.

Kricogonia differs both from *Gonepteryx* and *Anteos* in having the outer margins of the wings simple and without angular projections. It resembles *Gonepteryx* in having a smooth costa to the primaries, which, however, is simply curved as in *Anteos*, and without a concave depression as in *Gonepteryx*. The secondary male organs differ widely from those of the species of both these genera. The harpagones at the upper end split into two slightly expanding lobes; near the upper proximal corner proceed two lobes, the upper and smaller one terminating with two or three strong spines directed outwards, the lower and wider one carrying at the end a cluster of spines which are directed upwards. Near the middle of the ventral edge are two long strong spines, and two more near the base.

Kricogonia consists of two species, one of which is found throughout our country, North-western South America, and some of the Antilles; the other, so far as we at present know, occurs only in Guatemala and the islands of Haiti and Jamaica.

1. *Kricogonia lyside*.

Colias lyside, Godt. Enc. Méth. ix. p. 98¹.

Catopsilia lyside, Geyer in Hübn. Zutr. ex. Schmett. v. p. 13, ff. 843–844².

Rhodocera lyside, Boisd. Sp. Gén. i. p. 603³.

Kricogonia lyside, Streck. Butt. N. Am. p. 79⁴.

Gonepteryx terissa, Lucas, Rev. Zool. 1852, p. 429⁵.

Alis cretaceo-albis, anticis ad basin aurantiis ad apicem quoque aurantio lavatis, posticis macula elongata transversa ad costæ finem nigra (interdum absente): subtus flavescens immaculatis.

♀ mari similis, sed macula posticarum fusca semper absente.

Hab. NORTH AMERICA, Florida, Texas⁴.—MEXICO⁴, Pinos Altos (*Buchan-Hepburn*), Presidio, Tres Marias Islands (*Forrer*); GUATEMALA, Toco (Champion), San Gerónimo, Polochic valley (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*).—COLOMBIA; VENEZUELA; HAITI⁵; JAMAICA⁵.

The conspicuous spot near the apical angle of the secondaries of the male of this species varies very greatly: in some it is an elongate stripe the eighth of an inch wide; in others it is only just perceptible; in others, again, it is wholly wanting, the latter precisely resembling the females in external appearance. None of our males from Guatemala show this character, but we find it everywhere else where the species occurs.

K. lyside does not appear to be a very common insect; most of our Guatemalan specimens were taken in the interior at an altitude of about 3000 feet above the level of the sea, but it is found at a much lower elevation at such places as the Tres Marias Islands and San Pedro.

2. *Kricogonia unicolor*, sp. n.

Alis sulphureo-flavis unicoloribus, subtus (præter dimidio anticarum basali aurantio) pallidioribus et sericeis; linea longitudinali mediana albida.

Hab. GUATEMALA, San Gerónimo (*F. D. G. & O. S.*).—HAITI; JAMAICA.

We have two examples of this species from Jamaica and one from Haiti, and a single female which we believe to belong to it, captured at San Gerónimo in Guatemala, the only instance, so far as we are aware, of its occurrence on the continent of America.

COLIAS.

Colias, Fabricius in Ill. Mag. f. Ins. vi. p. 284; Boisduval, Sp. Gén. i. p. 634; Doubleday, Gen. Diurn. Lep. p. 72.

Colias cesonia and its allies were separated by Reakirt from the typical *Colias* and placed in a genus *Meganostoma*. He found certain appendages to the hind legs of the females, which he described under the name of "eupronychia"; these being absent in *Colias* suggested the separation of *Meganostoma*. We have searched in vain for these structures, and, failing them, are at a loss to find characters whereby to separate *C. cesonia* from true *Colias*.

The primaries are certainly more acute at the apex, and the second subcostal branch in the male is emitted just before instead of just after the end of the cell. In the female no material difference can be observed. The secondary male organs are very similar in *C. cesonia*, *C. philodice*, and *C. chrysotheme*—the harpagones being simple lobes in each case, the extremity being serrate in the first named, and the outer edge slightly concave in the others. The difference, however, in structure is comparatively slight. All the females have an elongated spinous chitinous patch in the bursa copulatrix.

The genus *Colias* has a very wide distribution chiefly in the northern hemisphere, but extending to South Africa and in South America along the Andes as far as Tierra del Fuego. *C. cesonia* and its allies belong rather to a warmer area, and *C. cesonia* itself is exceedingly abundant throughout our country.

1. *Colias chrysotheme*.

Papilio chrysotheme, Esp. Schmett. i. t. 65. ff. 3, 4¹; Hübn. Eur. Schmett. i. p. 65, ff. 426–428².

Colias chrysotheme, Elwes, Trans. Ent. Soc. Lond. 1884, p. 16³.

Colias eurytheme, W. H. Edw. Butt. N. Am. ii. *Colias*, 4⁴.

Alis aurantiis, anticis costa flavescentiore, puncto in cellula nigro, apice et margine externo pallide fusco, venis ad apicem flavescentibus, posticis costa et margine interno flavis, macula ad cellulæ finem vivide aurantia, limbo externo angulum analem versus evanescente pallide fusco: subtus fere ut in *C. philodice*, sed alis ochraceo-fulvioribus.

♀ mari similis, sed marginibus externis fuscis indistincte maculatis et subtus alis pallidioribus.

Hab. NORTH AMERICA, widely distributed.—MEXICO, Santana below Tribo (*Buchan-Hepburn*), Jalapa (*Höge*), Orizaba (*Sallé*), Oaxaca (*Fenochio*).—CENTRAL and SOUTH-EASTERN EUROPE.

Mr. W. H. Edwards's exhaustive paper on this butterfly has been our chief guide in determining the Mexican specimens of this *Colias* which we possess. Most of those which have the locality precisely recorded are of the form or brood described under the name of *Colias keewaydin*. Both forms known as *C. eurytheme* and *C. ariadne* also occur in Mexico, but hardly in such abundance as the *C. keewaydin* form; the former seems to belong to the Northern and Western Mexican States rather than to that of Vera Cruz.

The question of the succession of broods in Mexico and the order and proportion in which they appear can only be investigated by a resident observer, but it seems probable that they correspond to those of Texas, where there are said to be four annual broods—the first flying from November to February, which consists of *C. ariadne*, the next of *C. keewaydin*, the third of an intermediate form, and the last of *C. eurytheme*, the interval between the successive broods being, as a rule, marked. If any form appears at all out of its season it is not in sufficient numbers to invalidate the rule.

Trifolium reflexum, one of the food-plants of this species, is found in Southern Mexico, near Jalapa, and elsewhere*.

2. *Colias philodice*.

Colias philodice, Godt. Enc. Méth. ix. p. 100¹; W. H. Edw. Butt. N. Am. ii. *Colias*, 2, 3²; Elwes, Trans. Ent. Soc. Lond. 1884, p. 16³.

Alis vivide flavis, anticis macula ad cellulæ finem, apice et margine externo fuscis, venis ad apicem flavis; posticis puncto aurantio ad cellulæ finem, margine externo angulum analem versus evanescente fusco: subtus flavis, anticis puncto in cellula nigro serieque submarginali fuscis; posticis puncto in cellula altero minutissimo supra eum ferrugineo circumcincto serieque punctorum margini subparalleli roseis, puncto ad basin ciliisque omnibus coloris ejusdem.

♀ mari similis, sed anticis margine externo plus minusve indistincte flavo maculato.

Hab. NORTH AMERICA¹ from Canada southwards.—GUATEMALA, Dueñas (*F. D. G. & O. S*), Calderas (*Champion*).

The only specimens we have of this species from our country were taken in the open plain near Dueñas at an altitude of nearly 5000 feet, and at Calderas on the slope of the Volcano de Fuego at 7300 feet above the sea. These include several examples of both sexes which do not differ materially from others from New Brunswick and Long Island. The males correspond with the specimen figured by Mr. Edwards on plate iii. f. 3, except that the outer borders of both wings are broader. The discovery of this species in Guatemala is somewhat remarkable, as it extends our knowledge of its range southward very considerably, for hitherto we have no record of it south of Texas.

* Biol. Centr.-Am., Botany, i. p. 233.

Mr. W. H. Edwards speaks of the rapid increase of this species in the United States owing to the extension in the cultivation of red clover. We are not aware that this plant is grown in Guatemala; but *Trifolium amabile* grows near Calderas, where this insect was captured, and there are species of *Lupinus* and *Astragalus* in the neighbourhood.

3. *Colias cesonia*.

Papilio cesonia, Stoll, Supp. Cram. p. 176, t. 41. ff. 2, 2 B¹.

Zerene cesonia, Hübn. Samml. ex. Schmett. ii. t. 129².

Meganostoma cesonia, Butl. & Druce, P. Z. S. 1874, p. 360³.

Meganostoma cæsonia, Streck. Cat. Butt. N. Am. p. 80⁴.

Megonostoma helena, Reak. Proc. Ent. Soc. Phil. ii. p. 358⁵.

Meganostoma helena, Butl. & Druce, P. Z. S. 1874, p. 360⁶.

♂ alis sulphureis; anticis costa et basi nigris squamis flavis interspersis, apice et margine externo introrsum valde sinuatis, puncto quoque ad cellulæ finem, nigris; posticis apice nigro magis introrsum sinuatis, puncto duplici aurantio ad cellulæ finem: subtus flavis unicoloribus, anticis puncto nigro, posticis duobus ferrugineis argenteo pupillatis ad cellularum fines, ciliis omnibus roseis.

♀ mari similis, sed alis pallidioribus colore nigro undique squamis flavis intersperso, posticis ad apicem vix nigro tinctis.

Hab. NORTH AMERICA, Eastern States and Texas.—MEXICO, Northern Sonora (*Morrison*), Mazatlan, Campala (*Forrer*), Tierra Colorada, Rincon, Rio Papagaio, La Venta, Venta de Zopilote, Acaguizotla (*H. H. Smith*), Oaxaca (*Fenochio*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ciudad Victoria in Tamaulipas (*Richardson*), Cordova (*Rümelin*), Orizaba (*H. J. Elwes*), Fortin, Atoyac (*H. H. Smith*), Pinal near Puebla (*H. J. Elwes*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*), Central valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{3 6}), Rio Sucio, San Francisco (*Rogers*); PANAMA, Veragua (*Arcé*).—COLOMBIA to BOLIVIA; CUBA; HAITI.

Stoll's description and figure of this species were based upon specimens from Georgia¹. The species is widely distributed over the Eastern States, thence to Texas and throughout the mountainous parts of our country to the State of Panama. On the southern continent it passes to Bolivia, but here it departs somewhat from its typical character. This is also the case in Venezuela; and examples from the latter country have been called by Felder *Colias cerbera* and *C. therapis*, while those from the former, according to Doubleday, represent the variety *C. philippa* of Fabricius.

Much of the variation is due to the amount of black at the base of the primaries and to the width of the black outer border of the secondaries. As a rule both these features are more developed in northern than in southern specimens, but the diversity is such that we are of opinion that but little stress can be placed upon them. In Western North America there is a very distinct form of this *Colias* called *C. eurydice*; this has a much broader black border to the primaries, the basal portion of the wings being

suffused with a pink opalescent reflection ; this colouring is sometimes seen in a slight degree in fresh specimens of *C. cesonia*.

The larva is said to feed on various species of *Trifolium*.

TERIAS.

Terias, Swainson, Zool. Ill. i. t. 22 ; Boisduval, Sp. Gén. i. p. 651 ; Doubleday, Gen. Diurn. Lep. p. 76.

Sphænogona, Butler, Cist. Ent. i. p. 44.

Pyrisitia, Butler, Cist. Ent. i. p. 44.

Though the genus *Terias* can be divided on minor characters, it is remarkably uniform as regards its more important structures ; thus the secondary male organs are all constructed on a similar plan, in which *Nathalis* also agrees. The harpagones in *T. mexicana* terminate in three prominent hooks, which have their origin on the margin ; the uppermost and the lowest of these are the longest and turn abruptly inwards ; there is a fourth hook arising from the inner surface near the extremity, and another from below the dorsal edge near the base : these hooks on the harpagones are very characteristic of *Terias*, though they vary in number. The termination of the central rod of the tegumen varies—in some species it ends in a sharp point, in others in a blunt and even serrate edge. So far as the neuration of the primaries is concerned there is but little variation ; the second subcostal branch is emitted before the end of the cell, sometimes quite close to it ; the lower and middle discocellulars are subequal. The subcostal branch of the secondaries is emitted at various distances from the end of the cell—sometimes a considerable distance before it as in *T. proterpia*, sometimes close to the end as in *T. euterpe*, *T. albula*, &c., sometimes a little beyond it as in *T. mexicana*. It is upon this character chiefly that Mr. Butler founds his genera *Pyrisitia* and *Sphænogona*.

Terias, as a whole, is found throughout the tropical and subtropical portions of the world, and scores of names have been proposed for the very various forms in which many of the species present themselves. Many of these are said to be due to the season of the year at which they appear, wet-season and dry-season broods having each their peculiar characteristics. These observations have been made chiefly in the east. In our country we have not noticed any phenomena of this kind. Nevertheless our difficulty in differentiating many of the species mentioned below has been great, but we believe the twenty-two species we include in our fauna are fairly recognizable. In one respect we have been fortunate in having before us paired examples of many of the species taken together by competent collectors, and we are thus enabled to set forth the complicated synonymy of many of the species with some confidence.

As it is manifestly impossible for us to review the genus as a whole, we have contented ourselves with grouping the species which immediately concern us under the headings given below.

A. Male with a patch of closely felted scales between the median and submedian nervures on the primaries beneath.

1. *Terias nicippe*.

Papilio nicippe, Cram. Pap. Ex. t. 210. ff. C, D¹.

Terias nicippe, Streck. Cat. Butt. N. Am. p. 84²; Reak. Proc. Ent. Soc. Phil. ii. p. 359³.

♂ alis aurantiis, anticis apice, margine externo, et posticis margine externo (introrsum irregulariter) late fusco limbatis, anticis puncto ad cellulæ finem nigro: subtus plerumque flavescentioribus, anticis ad apicem et area tota posticarum rubido irroratis, frequenter quoque rubido transnotatis.

♀ mari similis, sed dilutioribus, anticis marginibus externis irregulariter, et posticis macula apicali tantum, notatis.

Hab. NORTH AMERICA, from Pennsylvania to Florida, Texas, Arizona, and the Pacific.—MEXICO, N. Sonora (*Morrison*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Presidio, Mazatlan, Ventanas (*Forrer*), La Venta, Venta de Zopilote, Tepetlapa, Dos Arroyos (*H. H. Smith*), Oaxaca (*Fenochio*), Ciudad Victoria (*Richardson*), Orizaba (*F. D. G.*), Cordova (*Rümeli*), Puebla (*H. J. Elwes*), Atoyac, Teapa (*H. H. Smith*), Chiapas (*Zettling*³); GUATEMALA, Motagua, Polochic, and Central valleys (*F. D. G. & O. S.*), Dueñas and San Gerónimo (*Champion*).—CUBA; SAN DOMINGO.

This species has a wide range over the Southern States of North America, and spreads throughout the whole of Mexico and Guatemala; it also extends to Cuba and San Domingo. As might be expected, there is considerable diversity in the coloration, especially in the females, some of which have the orange tint of the males, others being of a sulphur-yellow; the latter, so far as we know, are chiefly found in the peninsula of Florida. On the underside too great diversity prevails in this sex, the secondaries being much more heavily marked in some specimens than in others. The outline of the inner border of the dark margin of the secondaries also varies considerably, being more evenly serrated in some individuals than in others; and this is most noticeable in specimens from San Domingo, but we have precisely similar examples from Central America, so that the character is not of specific value.

T. nicippe has a considerable range in altitude in Guatemala, being found from near the sea-level to the height of 5000 feet.

B. No patch of felted scales on the primaries beneath.

a. Outer margin of secondaries angular.

a'. Subcostal branch of secondaries emitted long before the end of the cell. (*Pyrisitia*, Butler.)

2. *Terias proterpia*.

Papilio proterpia, Fabr. Syst. Ent. p. 478¹.

Terias proterpia, Streck. Cat. Butt. N. Am. p. 84²; Boisd. Lép. Guat. p. 11³; Reak. Proc. Ent. Soc. Phil. ii. p. 359⁴.

Pyrisitia proterpia, Butl. & Druce, P. Z. S. 1874, p. 359⁵.

♂ alis læte aurantiis, costa anticarum et venis fere omnibus nigro-fuscis: subtus anticis area posteriore pallide aurantiis, costa, apice et posticis omnino flavo-ochraceis, his indistincte rufo maculatis.

♀ mari similis, sed alis ochraceis (nec aurantiis), anticis dimidio distali, costa tantum et margine externo posticarum indistincte fusco notatis.

Hab. NORTH AMERICA, Texas.—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas (*Forrer*), Acapulco, Tierra Colorada, Omilteme, Rincon, Hacienda de la Imagen, Dos Caminos, Soledad, Tepetlapa, La Venta, Acaguizotla, Rio Papagaio, Dos Arroyos (*H. H. Smith*), Oaxaca (*Fenochio*), Ciudad Victoria (*Richardson*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, San Gerónimo, Polochic valley (*F. D. G. & O. S.*), Dueñas, San Gerónimo (*Champion*); HONDURAS (*Zettling*⁴); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁵), Rio Sucio (*Rogers*); PANAMA, Chiriqui (*Champion*), Bugaba, Chiriqui, Calobre (*Arcé*).—COLOMBIA; ECUADOR; CUBA; SAN DOMINGO.

This species has very much the same range as *T. gundlachia*, being generally distributed throughout our country, and extending northward into Texas, and southwards to Ecuador, its range in the Antilles being restricted to Cuba and San Domingo. Its range in altitude also corresponds with that of the allied species, being found at the sea-level in Yucatan and elsewhere, and in the mountain chains as high as 5000 feet. One of the characteristics of this species in the male is the veins of both wings being black, especially towards the outer margins, and by this feature it is readily recognized from *T. gundlachia*: some variation is observable in this respect, for though the outer portion of the veins of the wing are always black, those surrounding the cell are not always so; but we are unable to trace this variation in any particular district, though examples from Mexico and Guatemala usually have the veins rather blacker than those from more southern districts. Females vary in the width of the dark border of the secondaries, northern examples being rather wider in this respect than those from more southern places.

3. *Terias gundlachia*.

Terias gundlachia, Poey, Mem. Cub. i. p. 246, t. 24. ff. 1–3¹; Streck. Cat. Butt. N. Am. p. 85².

Terias longicauda, Bates, Ent. Monthly Mag. i. p. 32³; Boisd. Lép. Guat. p. 11⁴.

Pyrisitia gundlachia, Butl. & Druce, P. Z. S. 1874, p. 359⁵.

♂ anticis ad apicem acutis, posticis prolongatis subcaudatis, læte aurantiis, anticis costa, apice et dimidio marginis externi, venisque marginem externum versus fuscis: subtus dilutioribus, anticis striga costali a basi flava, costa apice anguste et area tota posticarum valde ferrugineo irroratis maculisque indistinctis in area discali coloris ejusdem notatis.

♀ mari similis, sed alis ochraceoribus, anticis costa in dimidio apicali tantum fusca.

Hab. NORTH AMERICA, Texas².—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas (*Forrer*), Tepetlapa, Venta de Zopilote, Acaguizotla, Rincon, Tierra Colorada, Dos Caminos (*H. H. Smith*), Orizaba, Jalapa (*F. D. G.*); GUATEMALA, Chuacus, Polochic valley (*F. D. G. & O. S.*³), San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*);

COSTA RICA (*Van Patten*⁵), San Francisco (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Veraguas, Calobre (*Arcé*).—EASTERN PERU; CUBA; HAITI.

Though Mr. Bates described this *Terias* as distinct from *T. gundlachia*, from specimens obtained by us in the interior of Guatemala, there can be little doubt that the Cuban and Central-American insects belong to one and the same species. We have only one Antillean specimen before us, a female from San Domingo, and this agrees accurately with examples from the mainland.

We have now a large series of specimens from many parts of Mexico and Central America, showing that the species has a wide range within our borders, and that it is found in the mountains at elevations varying from near the sea-level to a height of 6000 feet.

Some variation exists in the angular projection of the secondaries, which is always more prominent in the females, and in the males it is more produced in some specimens than in others.

b'. Subcostal branch of secondaries emitted beyond the cell. (*Sphænogona*, Butler.)

4. *Terias mexicana*.

Terias mexicana, Boisd. Sp. Gén. i. p. 655, t. 19. f. 1¹.

Abaeis mexicana, Geyer, in Hübn. Zutr. v. p. 29, tt. 917, 918².

Terias damaris, Feld. Reise d. Nov., Lep. p. 198 (♀)³.

Terias depuiseti, Boisd. Lép. Guat. p. 11⁴.

♂ alis pallide sulphureis, anticis margine externo fuscis, introrsum profunde et irregulariter sinuatis; posticis triente costali vivide flava, apice plus minusve fusco limbata: subtus anticis, præsertim ad basin, flavescentioribus, costa, apice et area tota posticarum rufo irroratis, illis puncto nigro ad cellulæ finem, his strigis et maculis indistinctis rubidis notatis.

♀ mari similis, sed posticis colore flavo regionis costalis absente et apice vix fusco tincto.

Hab. NORTH AMERICA, Texas, Arizona.—MEXICO^{3 4}, Northern Sonora (*Morrison*), Acapulco (*G. F. Mathew*), La Parada, Cuernavaca (*Boucard*), Puebla (*H. J. Elwes*), Omilteme, Amula, Tepetlapa, Tierra Colorada, Xucumanatlan, La Venta, Acaguizotla, Rio Papagaio, Rincon, Venta de Zopilote, Dos Arroyos, Dos Caminos (*H. H. Smith*), Oaxaca (*Fenochio*), Ciudad Victoria in Tamaulipas (*Richardson*), Orizaba (*H. J. Elwes*), Cordova (*Höge, Rümeli*); GUATEMALA, San Gerónimo, Purula (*Champion*), Dueñas, Chuacus, Motagua valley (*F. D. G. & O. S.*).

We apply this name to the *Terias* figured by Boisduval and Geyer, both of which represent the male, though Boisduval's description is based upon two species, his so-called male being *Terias boisduvaliana*, Felder, his supposed female the male of the present insect. This initial error has given rise to great confusion. Dr. Felder renamed the male *T. boisduvaliana*, and left the so-called female to stand as *T. mexicana*, as it had previously been called by Geyer. Unfortunately he further confused matters by describing the true female of *T. mexicana* as *T. damaris*. In his Lepi-

doptera of Guatemala, Boisduval recognized that his original description of *T. mexicana* covered two species, and he rightly associated with them their proper females; unfortunately he used the name *T. mexicana* for the species which neither he nor Geyer figured it under,—the *T. boisduvaliana* of the present work. The other species he called *T. depuiseti*.

Regarding *T. damaris*, which was based upon a female specimen obtained by Sallé in Southern Mexico, we have an example named by comparison with Dr. Felder's type, and we have no hesitation whatever in considering it a female of this species.

The dark portion of the outer border of the secondaries of the male of *T. mexicana* is subject to great variation, being narrow and almost confined to the vicinity of the anal angle in some specimens, in others it is large and approaches the end of the cell, and there is a deep fissure where the median nervure runs. Generally speaking the broad-bordered form is prevalent in Mexico and Guatemala, and the narrow one in Northern Sonora; but both forms occur in Texas, and at Dueñas we find the extremes and many intermediate links.

Terias mexicana seems to occur over nearly the whole of Mexico, at least in the higher grounds, and in such situations it is found throughout Guatemala from 2000 to 5000 feet above the level of the sea. Southward of Guatemala, that is to say in Costa Rica, its place is taken by a closely allied species *T. bogotana*, which differs in wanting the yellow patch over the costal area of the secondaries.

5. *Terias bogotana*.

Terias bogotana, Feld. Wien. ent. Mon. v. p. 84 (partim)¹; Reise d. Nov., Lep. p. 198, t. 26. ff. 3, 4².

Terias chloë, Feld. Reise d. Nov., Lep. p. 199³.

Sphænogona mexicana, Butl. & Druce, P. Z. S. 1874, p. 358⁴.

♂ *T. mexicana* similis, sed colore flava in regione costali posticarum absente.

♀ mari similis, sed anticis margine externo fusco angustiore et posticis venis tantum ad apicem fusco tinctis.

Hab. COSTA RICA (*Van Patten*⁴), Irazu, Cache, Rio Sucio, San Francisco (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui, Bugaba, Veraguas (*Arcé*). —COLOMBIA^{1 2 3}.

T. bogotana is closely allied to *T. mexicana*, but in the male the secondaries have no yellow over the costal area, so that the two forms are readily distinguishable. In his first description Felder associated two different species as the sexes of *T. bogotana*. The supposed male he subsequently separated as *T. gaugamela*, and figured both in the Zoology of the Voyage of the 'Novara;' the latter we are unable to distinguish from *T. fabiola*. We have a specimen from Costa Rica which has been compared with the type of *T. chloë*; this we unhesitatingly place as the female of *T. bogotana*; moreover we feel convinced that the specimen described as the male of *T. chloë* is of the female sex. *Sphænogona mexicana* of Butler and Druce, from Costa Rica, belongs here, as the specimens before us show.

In Costa Rica and the State of Panama *T. bogotana* seems to be as abundant as *T. mexicana* is in Mexico and Guatemala, thence it passes southwards into Colombia. Mr. Champion's specimens from the State of Panama were taken at elevations varying from 1000 to 6000 feet.

6. **Terias boisduvaliana.** (Tab. LXIII. figg. 1, 2 ♂, 3, 4 ♀.)

Terias boisduvaliana, Feld. Reise d. Nov., Lep. p. 200 (♂)¹.

Terias ingrata, R. Feld. Verh. zool.-bot. Ges. Wien, 1869, p. 465².

Terias gratiosa, Reak. Proc. Ent. Soc. Phil. ii. p. 359³.

Terias mexicana, Boisd. Sp. Gén. i. p. 655 (♂)⁴; Lép. Guat. p. 11⁵.

♂ alis flavis, margine externo late fusco, introrsum præsertim ad medium valde sinuato; posticis quoque fusco late limbatis, introrsum cellulam versus valde dentatis et costam versus aurantio tinctis: subtus pallide flavis, posticis sparsim et indistincte ferrugineo maculatis.

♀ mari similis, sed dilutioribus et apicibus tantum fuscis (posticis interdum vix tinctis): subtus anticis costa et apice et posticis omnino rosaceo irroratis.

Hab. MEXICO¹, Ventanas, Presidio, Tres Marias Islands (*Forrer*), La Venta, Rio Papagaio, Tierra Colorada, Rincon, Tepetlapa, Dos Arroyos, Acaguizotla, Venta de Zopilote (*H. H. Smith*), Potrero (*Hedemann*²), Cordova (*Rümeli*), Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Zapote, San Gerónimo (*Champion*), Central and Motagua valleys, Choctum, Pacific slope (*F. D. G. & O. S.*); HONDURAS (*Zættling*³), San Pedro (*Whitely*); NICARAGUA; COSTA RICA, Irazu, Caché, San Francisco (*Rogers*).

This species was first described by Boisduval as the male of his *T. mexicana*, and with it was associated as its female the male of another species, to which we now restrict the name *T. mexicana*. In 1870 Boisduval referred the name *T. mexicana* to the present species, and called the other *T. depuiseti*; but the year before Rudolph Felder had named this species *T. ingrata*. Unfortunately the latter author overlooked the note in the Lepidoptera of the Voyage of the 'Novara,' where Boisduval's male *T. mexicana* was named *T. boisduvaliana*, a name which we think it right to adopt. It is readily distinguishable from the true *T. mexicana* by the yellow colour of the wings; but the two species are somewhat alike both as to the width and the outline of the dark border to the wings. Its true relationship, however, is with *T. gratiosa* rather than with *T. mexicana*, which takes its place in the State of Panama.

The range of this species is wide, and extends from the Mexican States of Sinaloa and Durango southwards through Guatemala to Nicaragua and Costa Rica. It is found from the level of the sea at Mazatlan to an elevation of 3000 feet in Guatemala.

Terias boisduvaliana varies more in size than any of the allied species; the smallest specimens in our possession are from the Tres Marias Islands and the neighbourhood of Mazatlan, but our series from other localities includes examples hardly larger.

We have figured a male and female from Rincon in Guerrero, taken by Mr. H. H. Smith in October 1888.

7. *Terias gratiosa*.

Terias gratiosa, Doubl. & Hew. Gen. Diurn. Lep. p. 78, t. 9. f. 5¹; Boisd. Lép. Guat. p. 12².

Terias theona, Feld. Reise d. Nov., Lep. p. 202³.

♂ *T. boisduvalianæ* similis, sed posticis albis nec sulphureis, plaga apicali tantum aurantia.

♀ alis omnino albis nec flavis, area costali anticarum vix flavo lavata.

Hab. PANAMA, Tolé (*Champion*), Calobre, Veraguas (*Arcé*), near the city of Panama (*J. J. Walker*).—COLOMBIA; VENEZUELA^{1 2 3}.

This species was described from specimens from Venezuela, whence we have several examples, including a female, typical of *T. theona* of Felder. It is no doubt allied to *T. boisduvaliana*, but the secondaries, instead of being yellow, are nearly white, with the exception of the dark border and an orange patch near the apex.

T. gratiosa just enters our fauna in the State of Panama, where it occurs as far as Tolé. A male specimen from Chiriqui, submitted to us by Dr. Staudinger, has a narrow black border to the secondaries, and thus almost exactly resembles *T. arbela* of Hübner.

The females of this species from Colombia and the State of Panama have the primaries nearly wholly white, whereas in the typical insect from Venezuela they are pale yellow.

8. *Terias fabiola*.

Terias fabiola, Feld. Wien. ent. Mon. v. p. 85¹; Reise d. Nov., Lep. p. 199².

Sphanogona fabiola et *limonea*, Butl. & Druce, P. Z. S. 1874, p. 359 (nec Felder)³.

Terias gaugamela, Feld. Reise d. Nov., Lep. p. 199, t. 26. f. 5⁴.

Terias jamapa, Reak. Proc. Ac. Phil. 1866, p. 239⁵.

♂ alis flavis, anticis apice et margine externo introrsum, præsertim angulum analem versus, valde erosis, late fuscis, margine externo posticarum quoque fusco limbato, regione costali aurantio tincta: subtus anticis pallidioribus, apice rosaceo; posticis ochraceis rosaceo sparsim irroratis et maculis ferrugineis notatis, ciliis flavis.

♀ multo pallidioribus, et colore fusco ad angulum analem tantum extendente introrsum serrato (nec eroso), posticis omnino flavis.

Hab. MEXICO, Omilteme, Mazatlan, Xucumanatlan, Rincon, Amula (*H. H. Smith*), Pinal near Puebla, Orizaba (*F. D. G.*), Cordova (*Rümelin*), Vera Cruz (*W. H. Edwards*⁵), Oaxaca (*Fenochio*); GUATEMALA, Dueñas, Chiacam, Cahabon, San Gerónimo, Zapote (*Champion*), Central valleys, Pacific slope, Tablelands (*F. D. G. & O. S.*); COSTA RICA (*Carmirol, Van Patten*³), Rio Sucio, Irazu (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui, Calobre, Veraguas (*Arcé*).—COLOMBIA⁴; VENEZUELA¹; ECUADOR.

The difficulty as regards the sexes in this genus has involved this species in somewhat the same confusion as prevails in *T. mexicana* and *T. bogotana*, for the male of this species was originally supposed to represent that sex of *T. bogotana*, an error Dr. Felder discovered and corrected by describing the present species under the name of *T. gaugamela*. Compared with *T. xanthochlora* the secondaries are more angular,

have a broader black outer margin, and have a tinge of orange towards the costal area. The females of the two species are very much alike, but may, we believe, be distinguished by the greater prominence of the marginal angle of the secondaries.

With the types of *T. fabiola* before us, and authentic specimens of *T. gaugamela*, we are unable to trace any practical difference between them. The females correspond very closely. The male of *T. fabiola* has the outer black border of the secondaries very narrow; but this, as is well known, is a very variable character.

Regarding *T. jamapa* of Reakirt we have some doubts whether the description was based upon a female of this species or upon one of *T. xanthochlora*; but as he says that the outer margin of the secondaries is prolonged into a longish pointed lobe, we are inclined to think that the name should be referred to *T. fabiola*.

Ecuador is the most southern point whence this species has been recorded.

9. *Terias xanthochlora*. (Tab. LXIII. figg. 5, 6 ♂, 7, 8 ♀.)

Terias xanthochlora, Koll. Denkschr. Ak. Wiss. Wien, i. p. 363¹.

Terias constantia, Feld. Reise d. Nov., Lep. p. 200².

Sphænogona constantia, Butl. & Druce, P. Z. S. 1874, p. 359³.

♂ alis sulphureo-flavis, anticis apice et margine externo (angulum analem versus angustiore) nigro-fuscis, introrsum sinuatis; posticis vix angulatis, angustissime fusco limbatis: subtus pallide flavis, posticis maculis et squamis ferrugineis sparsim notatis.

♀ mari similis, sed colore fusco anticarum vix ad angulum analem extendente, posticis margine externo fusco absente (interdum ad apicem fusco vix tinctis); subtus apicibus rosaceo tinctis.

Hab. MEXICO (*Sallé*², *Boucard*), Fortin, Teapa (*H. H. Smith*), Cordova (*Rümeli*); GUATEMALA, San Gerónimo, Central valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Endres, Van Patten*³), Caché (*Rogers*); PANAMA, Chiriqui (*Arcé, Ribbé*), Volcan de Chiriqui (*Champion*).—COLOMBIA^{1 2} to PERU.

We use this name for a form in which the secondaries have a very slight marginal angle and a very narrow or obsolete black border, and have both wings of a uniform primrose-yellow, without any wash of orange towards the costa of the secondaries.

In these points *T. xanthochlora* differs from *T. fabiola*, the only other species in our country with which it is likely to be confused. Kollar's original description was based upon a Colombian specimen, of which we have an accurate drawing, and we have examples in our collection which exactly correspond. The typical form has no black border to the secondaries, but between this and a fairly definite border we find every gradation in the series before us. Specimens thus bordered agree with typical *T. constantia* of Felder, the range of which, according to him, extends from Venezuela to Mexico; therefore we see no tangible grounds for separating *T. constantia* from *T. xanthochlora*.

Mr. H. H. Smith found a number of pupæ of this insect attached thickly to the stems of a species of convolvulus at Teapa, from which he reared a series of specimens

of both sexes; they were doubtless individuals of one brood, and exhibit some variation, both as to the sinuations of the inner edge of the black border of the primaries and the extent to which the black outer border of the secondaries is developed. Mr. Smith says that these pupæ when living resembled the young undeveloped leaves of the plant to which they were attached.

We have figured specimens taken at Cordova, Mexico.

b. Outer margin of secondaries rounded.

c'. Subcostal branch of secondaries emitted close to the end of the cell.

a''. Submedian area of primaries of the male immaculate.

a'''. Wings yellow or orange.

10. *Terias euterpe*.

Colias euterpe, Mén. Bull. Mosc. p. 299¹; Nouv. Mém. Mosc. iii. p. 121, t. 11. f. 4².

Terias euterpe, Butl. & Druce, P. Z. S. 1874, p. 359³.

Xanthidia lisa, Boisd. Lép. Am. Sept. p. 53, t. 19. ff. 4, 5⁴.

Terias lisa, Boisd. Sp. Gén. i. p. 661⁵.

♂ alis sulphureis, anticis costæ dimidio basali fusco atomato, puncto ad cellulæ finem, apice et margine externo late nigricantibus; posticis margine externo quoque nigricante ad angulum analem decrescente: subtus flavis, anticis maculis duabus ad cellulæ finem, punctis ad ramorum fines nigris; posticis plaga apicali rufescente, punctis duabus ad cellulæ finem maculisque aliis discalibus fuscescentibus.

♀ mari similis, sed alis sordide albis (nec sulphureis) ad basin fusco nebulosis; posticis margine externo præcipue ad angulum apicalem fuscis: subtus omnino ochraceis.

Hab. NORTH AMERICA, Eastern States, Florida, Texas.—MEXICO, Presidio (*Forrer*), Acaguizotla, Tierra Colorada, Rio Papagaio, Tepetlapa, Rincon (*H. H. Smith*), Orizaba (*F. D. G.*), Atoyac (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Dueñas (*F. D. G. & O. S., Champion*); COSTA RICA (*Van Patten*³), Irazu, Caché (*Rogers*).—CUBA; SAN DOMINGO; JAMAICA.

We have described specimens from the State of Guerrero, which on an average have the dark border on both wings rather wide, but the difference is unimportant; Costa Rican specimens have the narrowest border, but can almost be matched by others from the State of Vera Cruz. By some authors this species is supposed to be *Papilio thymetus* of Fabricius; but, as Ménétriés, when describing *T. euterpe*, long ago pointed out, Fabricius's description is altogether too vague to be recognized with any certainty. *T. lisa* of Boisduval and Leconte was proposed for the North-American insect; but as the Antillean and North-American insects appear to be absolutely conspecific, *T. euterpe*, which was founded on Haitian specimens, must be used for it. In our country it cannot be called a common species, though Mr. Smith's recent collection from the State of Guerrero has supplied us with a fair number of specimens. In Guatemala we only met with it in the highlands in the neighbourhood of Dueñas.

11. *Terias dina*.

Terias dina, Poey, Cent. Lep. ii. Decade ¹.

Eurema dina, Hübn. Zutr. v. p. 37, ff. 951, 952 ².

Terias dina, Lefebvre, in La Sagra's Hist. Nat. Ins. Cuba, vii. p. 217 ³.

Terias westwoodii, Boisd. Sp. Gén. i. p. 666 ⁴; Lefebvre, in La Sagra's Hist. Nat. Ins. Cuba, vii. p. 218, t. 16. ff. 2, 2 a ⁵.

Terias calceolaria, Butl. & Druce, Cist. Ent. i. p. 110 ⁶.

♂ alis citrinis, anticis margine costali angustissime, apice et margine externo latiore, nigricantibus; posticis area distali aurantio tincta, margine externo angustissime fusco limbo: subtus alis flavis, posticis interdum fusco indistincte maculatis, punctis duobus ad cellulæ finem.

♀ mari similis, sed alis flavescentioribus, anticis colore fusco ad apicem latiore et posticis ad angulum apicalem rufescentibus; subtus apicibus omnibus ferrugineis.

Hab. MEXICO ⁴, Tepetlapa, Rio Papagaio, Venta de Zopilote, Rincon, Acaguizotla, Dos Caminos, all in the State of Guerrero (*H. H. Smith*), Oaxaca (*Fenochio*), Jalapa, Orizaba (*F. D. G.*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Vera Cruz (*F. D. G.*), Valladolid in Yucatan (*G. F. Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Yzabal, Polochic valley, Motagua valley, Tablelands, Pacific coast (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*), Ruatan Island (*G. F. Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten* ⁶), Irazu (*Rogers*).—CUBA ^{1 2 3 5}.

The Cuban and Mexican forms of this *Terias* have usually been considered to be distinct, the former bearing the name *T. dina*, bestowed upon it by Poey in 1832, the latter that of *T. westwoodii*, given it by Boisduval in 1836. The differences between the two, according to Boisduval, are chiefly those of size, and, to some extent, in the coloration of the female. We have now an extensive series of this species, and the variation on the mainland existing amongst them is such that we find it impossible to distinguish the mainland from the island form, and we therefore unite them under Poey's title.

T. calceolaria of Messrs. Butler and Druce was based upon Costa-Rican specimens ⁶, which we have now before us, with rather a pale tint, but individuals of the ordinary type occur with them; moreover, we find both pale and dark specimens intermingled throughout nearly the whole range of the species. The palest of our series are from the neighbourhood of Vera Cruz, where Godman captured three specimens in January 1888; these also have a very narrow apical and marginal border. Examples from Atoyac, taken in May, are also pale, but a little darker than the Vera Cruz ones; the Ruatan-Island specimens too are of a decidedly pale tint. Other points of variation are to be found in the markings of the secondaries beneath, some examples being immaculate, others pretty freely marked with dusky spots; the females, too, vary as regards the density of the ferruginous apical spots beneath, which in some specimens are evanescent.

T. dina flies nearly throughout the year, but in greater abundance during the wet

season, from May to October. Its range in altitude, both in Mexico and Guatemala, is considerable, and extends from the sea-level to 4000 or 5000 feet.

We have described a pair taken together by Mr. Smith at Tepetlapa in October 1888.

12. *Terias athalia*. (Tab. LXIII. figg. 9, 10 ♂, 11, 12 ♀.)

Terias athalia, Feld. Reise d. Nov., Lep. p. 208¹.

♂ alis sulphureis, anticis apice nigricante introrsum arcuato ad angulum analem sinuato; posticis immaculatis, ad marginem internum albis: subtus pallidioribus immaculatis.

♀ mari similis, anticarum apicibus nigricantibus paulo latioribus; posticis margine externo leviter fusco atomato: subtus alis omnibus macula apicali rubra; posticis punctis duobus ad cellulæ finem nigris et maculis quibusdam indistinctis discalibus fuscis.

Hab. PANAMA, Volcan de Chiriqui, Bugaba, David (*Champion*).—COLOMBIA¹.

Panama specimens agree accurately with others from Santa Marta which have been compared with the type of *T. athalia*; with these we believe specimens from Eastern Ecuador, Peru, and the Amazons valley, as well as others from South-eastern Brazil and Paraguay, will have to be associated.

The insect from the Amazons valley has been called *T. flavilla* by Mr. Bates, and more recently *T. hahneli* by Dr. Staudinger; examples from this region have a slightly wider dark apex, and the females appear to be destitute of the red apical spots beneath. Were we confident that all certainly belonged to the same species we would use Mr. Bates's name *T. flavilla* for it as being the oldest, but our materials are hardly sufficiently complete to enable us to form a definite opinion; therefore, as we have no doubt about *T. athalia*, we employ that name for our Panama specimens.

As a rule the underside of the male is immaculate, but in some Colombian specimens faint discal spots appear; these are mentioned in Felder's description, and are shown in Dr. Staudinger's figure of *T. hahneli*. *T. athalia* has as yet only been met with in our country in the State of Panama.

Our figure of the male was taken from a specimen captured by Mr. Champion at David, that of the female from one from the Volcan de Chiriqui.

13. *Terias limbia*. (Tab. LXIII. figg. 13, 14 ♂, 15 ♀.)

Terias limbia, Feld. Wien. ent. Mon. v. p. 86¹.

Terias deva, Bates (nec Doubl.), Journ. Ent. i. p. 240².

♂ alis anticis sulphureis, costa anguste, apice et margine externo late nigris; posticis albidis interdum flavo tinctis, margine externo plus minusve nigro: subtus pallide sulphureis fere immaculatis.

♀ mari similis, sed alis concoloribus albidis flavido vix tinctis.

Hab. GUATEMALA, Central valleys (*F. D. G. & O. S.*); HONDURAS, San Pedro (*Whitely*); PANAMA, Lion Hill (*McLeannan*).—COLOMBIA; VENEZUELA¹; AMAZONS VALLEY²; GUIANA.

This appears to be the species attributed to *T. deva* by Mr. Bates; and probably *T. agave* of Fabricius, but not of Donovan (whose figure represents what is now known

as *T. chilensis* of Blanchard), also belongs to it. Under these circumstances we prefer to use Felder's title, concerning which we have no doubt, the type being before us. We have several specimens of this species from Panama, taken at one of the stations on the railway line, but only a single male from the interior of Guatemala, captured by ourselves in 1862, and a single female from Honduras.

From this it would appear that the species is anything but common in Central America generally.

Our figures are taken from specimens captured on the Isthmus of Panama.

14. *Terias tenella*.

Terias tenella, Boisd. Sp. Gén. i. p. 657¹.

Terias circumcincta, Bates, Journ. Ent. p. 241².

Terias nisella, Feld. Verh. zool.-bot. Ges. Wien, xii. p. 474³; Reise d. Nov., Lep. p. 207⁴.

Terias nelphe, R. Feld. Verh. zool.-bot. Ges. Wien, 1869, p. 466⁵.

Terias stygmula, Boisd. Sp. Gén. i. p. 661⁶; Butl. & Druce, P. Z. S. 1874, p. 359⁷.

Eurema (Terias) venustula, Staud. Verh. zool.-bot. Ges. Wien, 1875, p. 93⁸.

♂ alis læte sulphureis, anticis apice et margine externo fuscis, introrsum angulum analem versus sinuatis; posticis quoque fusco irregulariter marginatis, ciliis flavis: subtus sulphureis unicoloribus, anticis ad costam squamis fuscis sparsim notatis, puncto nigro ad cellulæ finem; posticis ad basin fusco atomatis, punctis duobus ad cellulæ finem maculis irregularibus discalibus fuscescentibus.

♀ mari similis, sed alis pallidioribus anticarum apicibus tantum fuscescentibus: subtus maculis apicalibus rufis notatis.

Hab. MEXICO, Mazatlan, Presidio (*Forrer*), Rio Papagaio, Rincon, Tierra Colorada, La Venta, Acapulco, Tepetlapa, Venta de Zopilote, Hacienda de la Imagen, Acaguizotla, Dos Arroyos, all in the State of Guerrero (*H. H. Smith*), Cordova (*Rümel*), Potrero (*Hedemann*⁵), Orizaba (*F. D. G.*), Atoyac (*H. H. Smith*), Vera Cruz (*Sallé*), Teapa (*H. H. Smith*), Ruatan I. (*G. F. Gaumer*); GUATEMALA, Choctum, Yzabal, Polochic valley, Pacific coast (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*F. D. G. & O. S., Champion*), Cahabon, Chacoj, Zapote, San Isidro (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁷), San Francisco (*Rogers*); PANAMA, Chiriqui (*Arcé*), Volcan de Chiriqui, Bugaba, Tolé (*Champion*), Calobre (*Arcé*), Lion Hill (*M. Leannan*). — SOUTH AMERICA generally, Amazons valley², Guiana, South Brazil, &c.

We have taken our description from a male and female from Cordova in Mexico, which correspond with specimens compared with the types of *T. nelphe* of Felder. Our selection of about 200 specimens from the wide area mentioned above exhibits great variation both as to size, width of the outer margin, especially of the secondaries, and the extent of the markings on the underside of those wings. On comparing specimens selected from most distant parts we find them to agree so closely that we see no chance of being able to divide this variable form into either species or geographical races. On the whole, male specimens from Western Mexico have a wider margin than those from

any other part; but with widely margined individuals others with scarcely any margin at all occur, and every intermediate link between these extremes is represented.

Of the names that have been applied to this insect *T. tenella* of Boisduval seems the most applicable, and was based on a Brazilian insect; we have compared a male from Minas Geraes in Brazil with another from the Mexican State of Guerrero and find them absolutely alike. The same species has no doubt been frequently called *T. nise* of Cramer; but this name, based upon a female example said to have come from Jamaica, has been so variously applied by different writers as to be practically unintelligible, and for this reason we discontinue its use altogether.

T. nisella appears to us, from a specimen compared with the type, to have been based upon a female of *T. tenella*. *T. nelphe* of Felder applies to an insect of Eastern Mexico, which offers no practical difference from the typical form. Of *T. venustula* we have a specimen compared with Dr. Staudinger's type from Chiriqui; it seems to us to agree with average examples of the ordinary form of *T. tenella*. *T. circumcincta* of Bates, of which the types are before us, are of rather a richer yellow than the majority of our specimens, but we cannot think this difference important. The specimens called *T. stygmula* by Messrs. Butler and Druce appear to us to be small females of *T. tenella*.

T. tenella is an excessively common insect, being found (except in the more northern districts) throughout our region from the sea-level to an altitude of upwards of 5000 feet. In Mexico it probably flies throughout the year, but is perhaps most common in the wet season, from May to October.

b^{'''}. Wings white.

15. *Terias albula*.

Papilio albula, Cram. Pap. Ex. t. 27. f. E¹.

Terias sinoe, Butl. P. Z. S. 1871, p. 530²; Butl. & Druce, P. Z. S. 1874, p. 359³.

Terias sinoë, var. A, Boisd. Sp. Gén. p. 683⁴.

Terias marginella, Feld. Wien. ent. Mon. v. p. 97⁵; Butl. P. Z. S. 1871, p. 530⁶.

Terias albula, var. *marginella*, Butl. & Druce, P. Z. S. 1874, p. 359⁷.

Terias celata, R. Feld. Verh. zool.-bot. Ges. Wien, 1869, p. 466⁸.

Terias leucilla, R. Feld. Verh. zool.-bot. Ges. Wien, 1869, p. 466⁹.

Alis albis, apice et margine externo late fuscis, illo angulum analem versus decrescente et interdum non attingente; posticis interdum ad apicem fusco marginatis: subtus albis, basin versus flavo tinctis, interdum apice et posticis omnino quoque flavescentibus, his maculis indistinctis notatis.

Hab. MEXICO, Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Vera Cruz (*F. D. G.*), Oaxaca (*Fenochio*), Frontera, Teapa (*H. H. Smith*), Valladolid in Yucatan (*G. F. Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Choctum, Polochic and Motagua valleys, Pacific coast (*F. D. G. & O. S.*), Panima, Zapote (*Champion*); HONDURAS, Ruatan Island (*G. F. Gaumer*), San Pedro (*Whitely*); NICARAGUA, Chontales (*Belt, Janson*);

COSTA RICA (*Van Patten*^{3 6 7}), Irazu, Caché (*Rogers*); PANAMA, David (*Champion*), Chiriqui, Calobre, Veraguas (*Arcé*), Paraiso (*Hughes*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA generally to South Brazil.

Considerable variation is found in a series of specimens as to the width of the black margin of the secondaries, which is wholly absent in our Mexican examples; it becomes just apparent in some females in Guatemala; in Nicaragua it is well defined, and thence southward throughout the whole northern portion of South America, but it becomes again evanescent in South Brazil. As regards the underside the northern specimens are, as a rule, much more suffused with yellow, and have indefinite spots on the secondaries. These characters gradually disappear, until we find in most southern examples the under surface nearly immaculate white, with a yellowish tinge at the base of the wings. Lastly, as regards size, with a vast majority of specimens of average dimensions we find, very generally dispersed, examples of very small size which we are not otherwise able to distinguish from those with which they are associated.

Of the names which have been given to this variable form, *T. lucilla* and *T. celata* apply to the insect of South-eastern Mexico, *T. marginella* to that of Venezuela, found also, according to Butler and Druce, in Costa Rica. The original *T. albula* of Cramer came from Guiana, and the figure shows no dark margin to the secondaries; but with Guiana specimens like the figure we also find others with the black margins, these we believe to be females. *T. albula* appears to be a common species wherever it is found from the sea-level to an altitude of 3000 or 4000 feet; it is common in Eastern Mexico, probably as far north as Tampico, but it is apparently absent from the western side of that country. In Guatemala it occurs on both sides of the Cordillera.

NOTE.—*Terias gnathene*, Boisd. (Sp. Gén. p. 680; Geyer in Hübn. Zutr. v. ff. 937, 938), is stated to have come from Yucatan by Boisduval, and from Honduras by Mr. Butler (P. Z. S. 1871, p. 530), who also gives *T. messalina* (Fabr.) from the latter source, specimens of both having been purchased for the British Museum from a dealer in 1839.

We are convinced that the former is the male of the latter, and that the species is an Antillean one, found in Cuba and Jamaica, and also in the island of New Providence, whence Mr. Taylor has recently sent us a series of specimens. Its presence on the continent of Central America requires confirmation.

16. *Terias mana*. (Tab. LXIV. figg. 13, 14 ♂.)

Terias mana, Boisd. Sp. Gén. p. 681¹; Bates, Journ. Ent. i. p. 243².

Alis albis, anticis costa a basi grisea, apice et margine externo fuscis, illo introrsum angulum analem versus excavato; posticis nonnunquam margine externo griseo tincto: subtus anticis area interna alba, costa et apice cum posticis flavescentibus, illis maculis indistinctis fuscis notatis.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Lion Hill (*M^cLeannan*).—GUIANA; AMAZONS VALLEY²; NORTH BRAZIL.

The dusky basal half of the costa of the primaries renders this species easy of recognition. The sexes as determined by Mr. Bates are almost exactly alike.

This species appears to be rather scarce in our region; we have as yet seen only a single specimen from Nicaragua and three from the State of Panama.

Mr. Kirby has placed *T. mana* as a simple synonym of *T. agave* of Cramer, thereby following Boisduval himself, who cites Cramer's plate as applicable to his *T. mana*; but the description shows discrepancies which are hardly reconcilable. In the first place the black border of the secondaries in the figure of *T. agave* extends round the anal angle instead of stopping short of it, and there is a much wider dark border to the secondaries than in any specimen before us. Under these circumstances we think it best to use the name *T. mana* for this species.

We figure a male from the Isthmus of Panama.

b''. Submedian area of primaries of male black.

c'''. Inner area of secondaries yellow.

17. *Terias jucunda*. (Tab. LXIV. figg. 9, 10 ♂, 11, 12 ♀.)

Xanthidia jucunda, Boisd. & Lec. Hist. Gén. Lép. Am. Sept. p. 52, t. 19. ff. 1-3¹.

Terias jucunda, Boisd. Sp. Gén. i. p. 665²; Lép. Guat. p. 12?³

♂ alis sulphureis, anticis limbo costali plus minusve fusco atomato, apice late fusco introrsum arcuato et angulum analem versus sinuato, vitta interna fusca cano pilosa, margine interno infra eam aurantio; posticis plaga magna apicali fusca, reliquo plus minusve fusco atomato: subtus sericeo-albis, anticis area discoidali flavo lavata.

♀ mari similis, sed anticis vitta interna fere obsoleta: subtus flavescentioribus, plus minusve fusco irregulariter atomatis.

Hab. NORTH AMERICA, Southern States, Florida².—MEXICO³, Misantla, Orizaba (*F. D. G.*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*).

We have described and figured specimens taken at Orizaba in March 1888. They do not quite correspond with typical *T. jucunda* from Florida, being of rather a paler yellow, and the outer border of the secondaries is not quite so definite. Beneath they almost exactly correspond, the males having a yellow wash over the discal area of the primaries, and the secondaries are silky white, with a few dark scattered scales. Compared with *T. sidonia*, which has also yellow secondaries, *T. jucunda* differs in its less definite border to those wings, and by the absence of yellow on the primaries beneath; moreover, the female of *T. sidonia* is hardly tinged with yellow, and has all the lighter margins of the wings obscured by numerous dark scales.

T. jucunda appears to be wholly an eastern insect, and in Mexico is confined to the shores of the gulf, extending southward to British Honduras.

18. **Terias cepio**, sp. n. (Tab. LXIV. figg. 5, 6 ♂, 7, 8 ♀.)

Terias delia, Butl. P. Z. S. 1871, p. 533 (partim)¹.

♂ alis sulphureis ciliis albicantibus, anticis limbo costali fusco atomato, apice late fusco introrsum arcuato, angulum analem versus sinuato, ante angulum analem ipsum abbreviato, vitta margini interno parallela fusca cano pilosa, margine interno infra eam aurantio; posticis plaga magna subtriangulari ad angulum apicalem, punctis quibusdam ad marginem externum fuscis: subtus ochraceo-gilvis, anticis interne sulphureis, posticis undique fusco atomatis, maculis irregularibus discalibus fuscescentibus.

♀ mari similis, sed alis supra vitta interna fusca nulla et subtus parte gilva rufescentiore.

Hab. MEXICO, Mazatlan (*G. F. Mathew*), Presidio (*A. Forrer*), Acapulco (*A. H. Markham*), Tepetlapa, Cuernavaca (*H. H. Smith*), Patzcuaro (*F. D. G.*), Puebla, Orizaba (*H. J. Elwes*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*).

We have described and figured a male and female captured in October, 1888, by Mr. H. H. Smith at Tepetlapa, in the State of Guerrero, at an altitude of 3000 feet above the sea. As a rule *T. cepio* may be distinguished by the bright yellow colour of its wings on the upperside, and by the rufescent tint of the secondaries beneath, especially those of the females; these characters are more strongly shown in specimens from Western Mexico than they are in those from the eastern side of the Cordillera, where some intermediate forms occur leading to *T. persistens*. The nearest ally, however, to this form is *T. delia* of the Eastern States of North America. *T. delia*, however, may be readily distinguished by its rufous fringe to the wings, and the deep ferruginous tint of the secondaries beneath. *T. cepio* enjoys a wide range in altitude, occurring at the sea-level at Mazatlan, and as high as 7000 feet at Puebla. It appears to occur all the year round, but is more abundant in the wet season.

19. **Terias sidonia**. (Tab. LXIII. figg. 16, 17 ♂, 18, 19 ♀.)

Terias sidonia, R. Feld. Verh. zool.-bot. Ges. Wien, p. 465¹; Butl. P. Z. S. 1871, p. 532².

♂ alis sulphureis, anticis limbo costali fusco plus minusve flavo atomato, apice late fusco introrsum arcuato, ad angulum analem trisinuato, vitta interna fusca cano pilosa, margine interno infra eam aurantio; posticis late fusco marginatis, interdum undique fusco atomatis: subtus sericeo-albis, immaculatis.

♀ mari similis, sed alis sordide albo nec flavo tinctis, et undique fusco atomatis.

Hab. MEXICO², Ventanas in Durango (*Forrer*), Acapulco (*J. J. Walker*, *A. H. Markham*, *H. H. Smith*), Rio Papagaio, Rincon, Tierra Colorada, Acaguizotla, Dos Arroyos, Venta de Zopilote, Hacienda de la Imagen, La Venta, Tepetlapa, Xucumanatlan, Chilpancingo, Amula, all in the State of Guerrero (*H. H. Smith*), Cuernavaca (*mus. Felder*¹ & *H. H. Smith*), Oaxaca (*Fenochio*), Cordova (*Rümelin*), Orizaba (*F. D. G.*), Teapa in Tabasco (*H. H. Smith*), Campeche (*mus. Felder*), Valladolid in Yucatan (*Gaumer*).

We have described and figured a pair taken together by Mr. H. H. Smith at Acapulco in September 1888; these agree sufficiently with a specimen from Oaxaca compared with Felder's type. The species is a very variable one, especially as regards the width and definition of the marginal border of the secondaries in the male, and the extent

to which the yellow portions of those wings are sprinkled with dark scales, in some specimens the yellow being nearly pure, in others almost wholly obscured. Another point of variation lies in the dark band near the inner margin of the primaries, which in some cases joins the outer border, but in others, as is usual in this group, sometimes falls short of it. Some females are almost wholly fuscous, and nearly all have the lighter portion of the wings overspread with dark scales. The specimens from Eastern Mexico, Cordova, &c. are hardly typical, the males approaching those of *T. jucunda*, so that one cannot always be certain to which form they should be referred; but the form of Western Mexico, as a whole, is fairly definite.

Mr. Smith's specimens from Western Mexico were all taken between June and October, that is, during the wet season. A single male was captured at Teapa in April, and Godman's Orizaba specimens in December, so that the insect probably flies during the whole year.

d'''. Inner area of secondaries white.

20. ***Terias persistens***. (Tab. LXIII. figg. 24, 25 ♂, 26, 27 ♀.)

Terias persistens, Butl. & Druce, Cist. Ent. i. p. 110¹; P. Z. S. 1874, p. 359².

T. cepioni similis, sed posticis albis nec flavis distinguenda.

Hab. MEXICO, Misantla, Orizaba (*F. D. G.*), Jalapa (*H. J. Elwes*), Atoyac (*H. H. Smith*); GUATEMALA, Central valleys, Dueñas (*F. D. G. & O. S.*), Cahabon (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{1 2}), Irazu and San Francisco (*Rogers*); PANAMA, Bugaba (*Champion*), Calobre (*Arcé*), Lion Hill (*M. Leannan*).

We have described and figured Costa Rican specimens, the types of Messrs. Butler and Druce's *T. persistens*¹. The species is closely allied to *T. rhodia* of Felder, being similarly marked on the underside; but the dark band parallel to the inner border of the primaries in the male is much narrower in the latter species, and has a tendency to become obsolete. Specimens from Eastern Mexico frequently have a slight tinge of yellow on the secondaries, and are rather less rufescent on the underside of those wings; they thus show an approximation towards *T. cepio*, which is found in the same districts.

Its range in altitude extends from the sea-level to a height of 5000 feet.

21. ***Terias lydia***. (Tab. LXIII. figg. 20, 21 ♂, 22, 23 ♀.)

Terias lydia, Feld. Wien. ent. Mon. v. p. 87¹; Reise d. Nov., Lep. p. 206².

Terias elathea, Reakirt, Proc. Ent. Soc. Phil. ii. p. 360?³; Boisd. Lép. Guat. p. 12⁴?

Terias palmira, Butl. P. Z. S. 1871, p. 532⁵; Butl. & Druce, P. Z. S. 1874, p. 359 (nec Poey)⁶.

Terias eugenia, Butl. P. Z. S. 1871, p. 531⁷; Butl. & Druce, P. Z. S. 1874, p. 359 (nec Wallengren)⁸.

T. sidoniæ affinis, sed posticis interne pure albis, femina vitta interna vix ulla et area pallida haud fusco atomata.

Hab. MEXICO⁴, Orizaba, Jalapa (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*), Cordova

(*Rümeli*); GUATEMALA ⁴, Yzabal, Polochic valley, San Gerónimo, Chuacus, Dueñas, Pacific coast (*F. D. G. & O. S.*), Zapote (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten* ⁶), Caché (*Rogers*); PANAMA, Bugaba, David (*Champion*), Calobre, Veraguas (*Arcé*), Lion Hill (*M^cLeannan*); COLOMBIA ^{1 2}; VENEZUELA ².

We have described and figured a pair taken together at Zapote in Western Guatemala by Mr. Champion. The male agrees closely with one of the types of *T. lydia* now before us, differing only in having the dark band parallel to the inner border of the primaries rather wider; but narrow banded specimens occur throughout our region, so that we do not attach much value to this difference. In its typical form the secondaries beneath are nearly pure white; but there is a good deal of variation, especially amongst the females, in this respect, some specimens of that sex from the interior of Guatemala are completely overcast with greenish-dusky scales. The typical form has the secondaries nearly evenly bordered with dusky black. This character, however, varies to such an extent that the border is sometimes almost confined to an apical spot; and when this is the case the individual resembles *T. persistens* or *T. rhodia*, but may then be distinguished by the pale and not rufescent under surface of the wings. Whether *T. lydia* is really distinguishable from *T. palmira* of Poey is, we think, an open question. The males are exceedingly alike; but as the females of the latter species are rather whiter at the base of the costa, and are more rufescent beneath, we are reluctant to unite the island and mainland forms.

Messrs. Butler and Druce referred a male from Van Patten's collection to *T. palmira*, and a female to *T. eugenia* of Wallengren; we have, however, just stated our reasons for not considering *T. palmira* identical with *T. lydia*, and as to *T. eugenia* we are in considerable doubt as to what it refers. Mr. Butler has usually referred it to a Central-American or Antillean habitat; but the type is said to have come from the island of San Jose, which we take to be the island of that name in the Gulf of California. We have nothing at all resembling *T. lydia* from this region, so that we hesitate to accept Mr. Butler's identification of *T. eugenia*.

22. *Terias vitellina*. (Tab. LXIV. figg. 1, 2 ♂, 3, 4 ♀.)

Terias vitellina, Feld. Wien. ent. Mon. v. p. 86 ¹; Reise d. Nov., Lep. p. 202 ².

♂ alis anticis sulphureis, limbo costali et apice late fuscis, hoc introrsum sinuato, illo sulphureo atomato, vitta margini interno parallela nigerrima extrorsum aurantio limbata; posticis albis, margine externo fusco ad angulum apicalem latiore: subtus albis flavido tinctis, anticis ad apicem et posticis undique squamis fuscis atomatis et nonnunquam maculis obsoletis fuscis notatis.

♀ mari similis, anticis vix flavo tinctis, vitta submarginali nigra absente; subtus paullo rufescentioribus.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA, San Francisco (*Rogers*); PANAMA, Volcane de Chiriqui (*Champion*), Veraguas (*Arcé*), Colon (*Boucard*).—COLOMBIA; VENEZUELA ^{1 2}.

We have described and figured a male from Chiriqui, which agrees very closely with

typical specimens from Colombia; and with this an example from Colon also corresponds, except that the secondaries beneath are rather more spotted. Other specimens from Central America differ as to the submarginal black band of the males, which in some is but faintly shown and in others is almost obsolete, but in all cases this band is clearly black and not fuscous. There is also great variation in the width of the marginal band of the secondaries.

The female we have figured is from Veraguas, the male from the Volcan de Chiriqui.

NATHALIS.

Nathalis, Boisduval, Sp. Gén. i. p. 589; Doubleday, Gen. Diurn. Lep. p. 54.

This genus is closely allied to *Terias* in several essential points of structure. The harpagones of the male bear towards the extremity a series of points very similar to those of *Terias*. There is, however, a difference in the form of the wings, which are more elongated than in *Terias*, and the primaries have only two subcostal branches *. In *Terias* three subcostal branches are always present.

Nathalis, as represented by *N. iole*, has a wide range in all open places throughout our region from Honduras, Guatemala and thence northward into the frontier States of North America, and also occurs in the Greater Antilles. In the Andes of North-western South America an allied species occurs.

1. *Nathalis iole*. (Tab. LXIV. figg. 15, 16 ♂, 17, 18 ♀.)

Nathalis iole, Boisd. Sp. Gén. i. p. 589¹.

Nathalis luteolus, Reak. Proc. Ent. Soc. Phil. ii. p. 350².

♂ alis sulphureis, anticis apice late nigro, fascia subcellulari a basi prope angulum analem extendente basin squamis flavis intermixtis; posticis margine externo et venarum finibus nigris, ciliis flavis: subtus sulphureis, anticis fascia costali aurantia, altera margini interno paralleli et punctis duobus ad finem ejus nigris; posticis fascia obsoleta fusca margini externo subparalleli.

♀ mari similis, anticis fusco nec nigro notatis; posticis aurantiis ad basin, et fascia submarginali, fuscis, squamis flavis notatis: subtus anticis apice et posticis omnino squamis olivaceis irroratis.

Hab. NORTH AMERICA, South-western States, Arizona, Texas.—MEXICO, Northern Sonora (*Morrison*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas (*Forrer*), Venta de Zopilote, Dos Arroyos, La Venta (*H. H. Smith*), Cuernavaca, Aguas Calientes, Mexico city, Jalapa, Puebla (*F. D. G.*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*, *F. D. G.*), Atoyac (*H. H. Smith*); GUATEMALA, Polochic valley, Central valleys, Dueñas (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*Champion*); HONDURAS².—CUBA; JAMAICA.

Our figures are taken from specimens captured by Mr. H. H. Smith at Atoyac in May 1888.

* Mr. Butler (Cist. Ent. i. p. 41) describes the neuration of the wings very differently; what we consider the upper radial he calls the fourth subcostal branch, and he treats the upper radial as absent.

Nathalis iole is common in the South-western States and California, and thence spreads southwards over nearly the whole of the mountainous parts of Mexico and Guatemala. Its range in altitude is considerable, and extends from about 1500 feet above the level of the sea to 7000 or 8000 feet. It is found in open places, where it frequently associates with species of *Terias*.

Both sexes are subject to some variation, which chiefly affects the dark band parallel to the inner border of the primaries. In some specimens this band is evanescent, in others strongly defined.

Group DISMORPHINA.

Subcostal nervure of primaries four-branched; tegumen of the male furcate.

Dismorphia and its allies offer so many points of distinction from the rest of the Pierinæ that it seems advisable to place them in a separate section or group. The secondary sexual organs of the male, though closely resembling one another as described below, differ materially from all the other members of the Pierinæ we have examined.

The secondaries in the females of every member of this section, and in the males in nearly every case, have the subcostal branch emitted some distance beyond the cell. The structure of the antennæ presents the greatest peculiarity. Each of the seven or eight joints forming the distal end of the club have four round depressions surrounding their distal edge, which we take to be sensory pits, a structure more complicated than we have yet found in any other group of the Pierinæ, though *Terias* possesses a ventral series of similar depressions. Another peculiarity of this section is the cretaceous patches on the underside of the primaries, and the upperside of the secondaries being surrounded with a smooth silky area, which Doubleday describes as composed of exceedingly minute and peculiarly-formed scales. These latter do not exceed the six hundred and fiftieth part of an inch in breadth or the four hundredth of an inch in length; they are heart-shaped, deeply lobed at the base, more or less rounded at the apex, varying a little in the proportion of length to breadth; the lobes at the base project beyond the little foot-stalk by which they are attached to the wing, which has its origin at the deepest part of the notch between the lobes. Each scale is therefore bent to allow of its attachment to the wing; the chalky spot in the middle of this silvery patch is composed of scales of ordinary form, more erect and more imbricate than is usually the case.

The posterior wings are in most cases extraordinarily developed, and in this respect have no parallel in other Pierinæ.

The Dismorphina are peculiarly tropical American, and there is nothing like them in any portion of the Old World.

Doubleday and the older writers, deceived by the resemblance of the pattern of the wings of several species of *Dismorphia* to that of certain Heliconinæ, considered that there might be a real relationship between these insects. The fully-developed front

legs in both sexes, and the bifid claws on all the legs in the *Dismorphina*, are conclusive evidence that they are true *Pierinæ*, and are in no way connected with the *Heliconinæ*.

DISMORPHIA.

Dismorphia, Hübner, Verz. bek. Schmett. p. 10; Kirby, Cat. Diurn. Lep. p. 432.

Leptalis, Dalman, An. Ent. p. 40; Boisduval, Sp. Gén. i. p. 412; Doubleday, Gen. Diurn. Lep. p. 35.

A close examination of the members of the old genus *Dismorphia*, or *Leptalis* as it has been more frequently called, reveals the fact that great diversity of structure exists amongst them—so much so that we think it necessary to divide it into four separate genera, and we believe that further subdivision will hereafter be found expedient.

The main grounds of separation may be briefly stated as follows:—

- A. First subcostal branch of the primaries united with the costal.
 - a. First subcostal branch of the primaries emitted beyond the end of the cell.
 - a'. Subcostal branch of the secondaries in the ♂ emitted far beyond the end of the cell. (Type *Papilio amphione*, Cr.) **DISMORPHIA.**
 - b'. Subcostal branch of the secondaries in the ♂ emitted at the end of the cell. (Type *Pieris nemesis*, Latr.) . . . **ACMEPTERON.**
 - b. First subcostal branch of the primaries emitted at the end of the cell. (Type *Papilio melite*, Linn.) . . . **ENANTIA.**
- B. First subcostal branch of the primaries free. (Type *Pieris nehemia*, Bdv.) **PSEUDOPIERIS.**

Papilio amphione of Cramer may be considered the type of Hübner's genus *Dismorphia* as here restricted, Dalman's name *Leptalis* being unfortunately strictly synonymous. *D. praxinoe* of our region is the only truly typical species found there; the other six are all more or less aberrant, but for the present we think it advisable not to carry generic subdivision further.

The subcostal nervure of the primaries of *D. praxinoe* reaches the margin at the apex of the wing; the upper discocellular is quite short, and meets the subcostal nearly at a right angle; the middle discocellular is bent to a right angle in the middle, and the lower discocellular is nearly in a line with the third segment of the median; the costal side of the cell is a little longer than the median side. The second and third segments of the median nervure of the secondaries are subequal, the lower discocellular is nearly at a right angle to the latter; the subcostal branch leaves the subcostal far beyond the cell. In the female the apex of the primaries is of a different outline, and is prolonged into a hook, into the point of which the upper radial enters; the lower discocellular is much shorter than in the male, and thus the median side of the cell is longer than the costal; the secondaries are narrower in proportion to their length; the cell also is narrower. The terminal joint of the palpi is very short, the middle joint being but

slightly longer; the basal joint is unusually long. The harpagones of the male organs terminate in a blunt densely chitinous lobe; the tegumen has no central point, but bifurcates, each fork ending in a strongly chitinous point, so that the extremities of these organs show four strong points.

The female of *D. praxinoe* does not appear to possess any chitinous spiny patch, but a small one is present in both *D. fortunata* and *D. pallidula*. We have already alluded to the variation in the structure of the species we still retain in *Dismorphia*; the seven found in our region may be grouped as follows:—

- a. Upper discocellular of the primaries short.
 - a'. Anal angle of primaries obsolete, outer margin concave.
 - a". Second and third median segments subequal . . . 1. *praxinoe*.
 - b". Second median segment shorter than the third . . . 2. *pallidula*.
 - 3. *medora*.
 - b'. Anal angle of primaries prominent, outer margin convex . . . 4. *fortunata*.
 - 5. *ribbei*.
- b. Upper discocellular of the primaries long 6. *sororna*.
- 7. *myris*.

Dismorphia, as here restricted, comprises a large portion of the species included in it under its wider sense, and embraces all those that have the coloration of the Ithomiinæ; they are distributed over nearly the whole of tropical America, their metropolis being the valley of the Amazons, where they were carefully studied by Mr. Bates, and formed the chief examples brought forward in his paper on mimetic resemblances.

1. *Dismorphia praxinoe*.

Leptalis praxinoe, Doubl. Ann. & Mag. Nat. Hist. xiv. p. 419¹; Gen. Diurn. Lep. p. 36².

Dismorphia amphione, Butler & Druce, P. Z. S. 1874, p. 362³.

Leptalis amphithea, Feld. Reise d. Nov., Lep. p. 144 (♂)⁴.

Dismorphia arsinoides, Staud. Ex. Schmett. p. 25, t. 15⁵.

♂ alis elongatis, anticis fusco-nigris, litura a basi vena mediana et ramo suo primo tripartita aurantio-rubra, linea angustissima inter venam costalem et subcostalem ad cellulæ finem haud extensa, altera brevior a basi infra venam medianam coloris ejusdem, maculis tribus exterioribus, una vena subcostali partita, secunda ultra venas discoidales, tertia subovali margini externo propiore et tribus subapicalibus flavis; posticis plaga permagna subovata costam aream distalem occupante cana sericeo-fusca marginata, litura infra venam medianam venis quadripartita fulvo-aurantiaca infra eam nigro-fuscis ad angulum analem rufo-brunneis: subtus anticis regione costali et apicali flavescenti-fuscis, maculis flavis sicut in pagina superiore, plaga magna canescente aream mediam et posteriorem occupante et sericeo-fusco circumcincta; posticis rufo-fuscis, maculis variis præsertim in dimidio apicali flavidis.

♀ mari similis, sed anticis costa apicem versus valde arcuatis et hamatis, coloribus omnibus dilutioribus, maculis flavis ad cellulæ finem fulvo tinctis; posticis fuscis litura mediana a basi fere ad apicem extensa fulva, costa et margine externo ad angulum analem ferrugineis; subtus anticis fere ut supra sed dilutioribus, posticis pallide ferrugineis flavo et fusco indistincte maculatis.

Hab. MEXICO (*Sallé*⁴), Mazatlan (*Forrer*), Orizaba, Oaxaca (*Fenochio*), Cordova

(*Rümeli*), Cuesta de Misantla (*M. Trujillo*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Chisoy and Polochic valleys, Choctum (*F. D. G. & O. S.*), Senahu, San Juan in Vera Paz, Panima, Volcan de Atitlan, Las Mercedes (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*³), Caché (*Rogers*); PANAMA, Bugaba (*Arcé, Champion*), Volcan de Chiriqui (*Champion, Ribbe*⁵), Veraguas (*Arcé*).

Doubleday's description of this insect¹ was taken from a female obtained by the botanical collector Hartweg, though from what locality is not stated*; he subsequently gives it as Mexico. The male was afterwards described by Felder as *L. amphithea*, from specimens sent him by M. Sallé. We have a good series of examples from Mexico, and from the whole of Central America to the State of Panama, throughout which wide area little or no individual variation can be traced. It inhabits the mountain-slopes to an elevation of from 3000 to 4000 feet. The female has a colour resemblance to *Mechanitis doryssus*, a species abundant throughout the same area.

D. praxinoe is allied to *D. amphione* of Cramer, with which it was confounded by Messrs. Butler and Druce.

2. *Dismorphia pallidula*. (*Leptalis pallidula*, Tab. LX. figg. 9, 10 ♂, 11 ♀.)

Dismorphia pallidula, Butl. & Druce, P. Z. S. 1874, p. 363¹.

Dismorphia othoë, Butl. & Druce, P. Z. S. 1874, p. 363² (nec Hew.).

♂ alis anticis fuscis, macula costali subovata ad cellulæ finem, altera minore subapicali et margine interno anguste virescenti-albis; posticis plaga subcostali ovata fulvo-fusca sericeo-albo circumcincta, area mediana late viridescenti-alba, margine externo late fusco: subtus flavescentibus, anticis maculis paginæ superioris indistincte indicatis, plaga mediana ovata fulvo-ferruginea, sericeo-albo circumcincta, in area discali et in costa rufo irroratis; posticis area mediana pallide sulphurea extrorsum in regione costali, apicali et margine externo rufo irroratis.

♀ mari similis, sed alis anticis magis obtusis et maculis majoribus; posticis costa et area interna flavescenti-albis: subtus anticis (nisi margine externo et macula costali) pallide fuscis.

Hab. COSTA RICA (*Van Patten*^{1 2}), Caché, Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé*), Volcan de Chiriqui (*Champion*).

D. pallidula has some resemblance, so far as the position of its markings are concerned, to *D. othoë*, of Colombia and Ecuador, but may at once be distinguished by the sexual alar stigmata of the males being brown instead of white; moreover, those markings which are pale yellow in *D. othoë* are in the present species white. So far as we know the range of this species is restricted to Costa Rica and the State of Panama, whence we have had numerous specimens sent us. Mr. Champion took it on the slope of the Volcano of Chiriqui as high as 4000 feet above the sea.

* Hartweg travelled in Mexico between 1836 and 1839; in the latter year he went to Guatemala. See Biol. Centr.-Am., Bot. IV. p. 126.

3. *Dismorphia medora*.

Leptalis medora, Doubl. Ann. Mag. Nat. Hist. xiv. p. 420¹; Doubl. & Hew. Gen. Diurn. Lep. t. 5. f. 4².

Leptalis cæsta, Koll. Denkschr. Ak. Wiss. Wien, i. p. 360, t. 45. ff. 9, 10³.

♂ alis fuscis, anticis macula obliqua irregulari ad cellulæ finem, duabus minutis subcostalibus, tertia in margine interno flavis; posticis plaga subcostali sordide ochracea, nitente margaritaceo circumcincta, litura discali flava: subtus flavidis, anticis plaga mediana ovata sordide cretacea, nitente margaritaceo circumcincta, macula in costæ medio et fascia subapicali rubescentibus; posticis plaga irregulari a costa ultra cellulam extensa, aliisque minoribus per alam diffusis quoque rubidis.

♀ mari similis, sed maculis tribus (nec duabus) subapicalibus; posticis area interna ultra cellulam prolongata flava, marginibus fuscis: subtus anticis macula costali sicut in pagina superiore fusco et ferrugineo circumcincta, posticis undique leviter rufo irroratis.

Hab. PANAMA, Veraguas (*Arcé*).—COLOMBIA¹; VENEZUELA.

This species was based upon Colombian specimens, and has since been traced over a large portion of South America, including Venezuela, the Andes of Ecuador and Bolivia, and the neighbourhood of Rio Janeiro in Brazil, and we see no tangible points of difference between examples from these widely distant localities. Our authority for including it in this work rests upon a single male specimen sent us from the State of Panama by Arcé. It agrees accurately with Colombian examples.

4. *Dismorphia fortunata*. (*Leptalis fortunata*, Tab. LXI. figg. 1, 2 ♂, 3 ♀.)

Leptalis fortunata, Luc. Ann. Soc. Ent. France, 1854, p. 55, t. 3. ff. 1, 1a¹.

Leptalis antherize, Hew. Ex. Butt., *Leptalis*, t. 3. f. 12².

♂ alis anticis chalybeo-fuscis, vittula elongata intra cellulam hyalina, macula subapicali transversa albida; posticis hyalinis regione costali et subcostali margaritaceis, vena mediana et ramis ejus cum margine externo fuscis: subtus ut supra, sed dilutioribus, anticis dimidio posteriore margaritaceo, punctis ad apicem albis; posticis regione subcostali brunnea, vittula albida ad costæ basin, maculis tribus ad apicem, prima permagna, secunda et tertia rotundatis aliisque elongatis in margine ipso, fascia submarginali rufo-fulva, puncto fulvo-ochraceo in costa ad basin.

♀ mari similis, sed colore chalybeo absente; anticis vittula hyalina majore et infra venam medianam extendente: subtus anticis fere ut supra et posticis sicut in mari, sed costa fusca (nec albida) maculis albis ad apicem et in margine externo minoribus.

Hab. MEXICO, Cuesta de Misantla (*M. Trujillo*), Jalapa (*Höge*), Tabasco (*Morelet*¹); GUATEMALA, Choctum, Polochic valley (*F. D. G. & O. S.*), Panima, Sabo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Irazu, Caché (*Rogers*); PANAMA, Bugaba (*Arcé, Champion*), Volcan de Chiriqui (*Champion*), Veraguas (*Arcé*).

D. fortunata is the only *Dismorphia*, with the exception of *D. ribbei*, resembling an *Ithomia* within our region, where it is by no means uncommon from Southern Mexico to the State of Panama. It is found in the lower forest-regions in company with *Leucothyris victorina*, to which it bears, especially the female, an exceedingly close general resemblance. Specimens vary but little; we notice, however, that the transverse discal band, especially in the males, is narrower and shorter in some specimens than in others.

5. *Dismorphia ribbei*. (*Leptalis ribbei*, Tab. LXI. fig. 4.)

Leptalis ribbei, Godm. & Salv. Ann. & Mag. N. H. ser. 5, ii. p. 265 (1878¹).

Alis nigricanti-fuscis; anticis dimidio basali interne venis diviso hyalino, maculis duabus discalibus transversis alteraque ad apicem albis; posticis præter marginem externum hyalinis venis nigris divisis: subtus dilutioribus, anticis maculis evanescentibus ad marginem externum albis; posticis margine externo maculis sex albis notato.

Hab. PANAMA, Chiriqui (*Ribbe*¹).

A single female specimen in Dr. Staudinger's collection obtained by Herr Ribbe in Chiriqui is the only example we have seen of this insect. It is allied to *D. theonoe*, but the diaphanous portion of the basal half of the primaries is much more extensive, the apical spot on the primaries is very small, and there is no spot on the costa near the apical angle of the secondaries.

6. *Dismorphia sororna*.

Dismorphia sororna, Butl. Cist. Ent. i. p. 82¹; Lep. Ex. p. 122, t. 46. ff. 1, 2²; Butl. & Druce, P. Z. S. 1874, p. 362³.

♂ alis anticis fusco-nigris, maculis tribus ad cellulæ finem, una inter venam costalem et subcostalem, secunda inter venas radiales, tertia marginem externum propiore, tribus subapicalibus et quatuor ad apicem ipsum minoribus, flavis, macula elongata inter ramum medianum primum et secundum flava, fulvo tincta; posticis plaga magna distali cana margaritaceo circumcincta, triente anali ferruginea, margine externo fusco, apicem versus maculis tribus flavis notatis: subtus anticis plaga magna mediana subovali albida margaritaceo circumcincta, costa et apice pallide fuscis, maculis paginæ superioris notatis, iis ad apicem albis (nec flavis); posticis fuscis, maculis flavis subapicalibus ad marginem externum albis notatis, plaga magna ferruginea a margine interno angulum analem versus extensa.

♀ mari similis, sed anticis pallidioribus maculis plerumque indistinctis; posticis fulvo-ferrugineis, costa, apice introrsum bene denticulata, et margine externo anguste, fuscis, maculis tribus ad apicem ipsum flavis: subtus fere ut supra, anticis maculis apicalibus albis, posticis in margine externo serie punctorum alborum.

Hab. COSTA RICA (*Van Patten*¹).

A male and four females of this fine species were contained in Van Patten's collection from Costa Rica, and formed the types of Mr. Butler's description. Both it and the following species are evidently allied to *D. cordillera* of Felder from Colombia, but they both of them differ in having the apical spots yellow in both sexes instead of white. The females have a strong resemblance in the outline of the wings, and in their coloration, to various butterflies of the genera *Tithorea*, *Ceratinia*, *Olyras*, *Heliconius*, *Eueides*, *Eresia*, &c., all found in the same region. *D. sororna* differs from *D. myris* in having the cell in the region of the median nervure black; beneath the secondaries are destitute of the large ochreous median patch prominent in the allied species.

7. *Dismorphia myris*, sp. n.

Dismorphia cordillera, Butl. & Druce, P. Z. S. 1874, p. 362¹.

♂ *D. sorornæ* similis, anticis vittula irregulari a basi vena mediana divisa fulvo-aurantia, lineam brevem flavam inter ramum medianum primum et secundum attingente; posticis triente anali fulva (nec ferruginea):

subtus coloribus lætioribus; posticis area anteriore flavescente, macula magna in cellula et fascia irregulari a costa ad medium marginis externi transeunte, fuscis, triente anali aurantio-fulva (nec ferruginea).
 ♀ feminae *D. sorornæ* similis, sed anticis vittula elongata mediana a basi angulum analem versus extendente ferruginea, ad finem cum maculis discalibus semihyalinis; posticis area mediana ochracea tincta et semihyalina: subtus coloribus omnibus dilutioribus maculisque majoribus, area mediana ochracea.

Hab. COSTA RICA (*Van Patten*¹); PANAMA, Volcan de Chiriqui, 4000 to 6000 feet (*Champion*).

A single female of this species was included by Messrs. Butler and Druce in their list of Costa-Rican butterflies under the name of *D. cordillera* of Felder, but the acquisition of two male examples from the Volcano of Chiriqui we think clearly shows that none of them are referable to the southern species. The rufous streak over the median nervure of the primaries on the upper surface in both sexes readily distinguishes *D. myris* from *D. sororna*; moreover, the former has a large ochraceous spot in the middle of the secondaries beneath, though this latter character is more pronounced in one of our specimens than in the other.

Mr. Champion's two male specimens were taken at an elevation of between 4000 and 6000 feet above the level of the sea.

ACMEPTERON, gen. nov.

We use *Pieris nemesis* of Latreille as the type of this genus. The male differs from *Dismorphia* in having the branch of the subcostal of the secondaries emitted at the end of the cell instead of beyond it, though the female resembles *Dismorphia* in this respect. The middle discocellular is bent to a right angle, each section and the upper and lower discocellulars being subequal, but the latter in the female are much abbreviated. The harpagones of the male terminate in two strongly chitinous dentate lobes. The bursa copulatrix of the female has a spinous patch rounded at each end and somewhat constricted in the middle.

The four species we include in this genus are all closely allied; three of them are peculiar to Central America, and the fourth, *A. nemesis*, has a wide range over the slopes of the Andes in South America.

1. *Acmepteron nemesis*.

Pieris nemesis, Latr. Humb. & Bonpl. Obs. Zool. ii. p. 78, t. 35. ff. 7, 8¹.

Leptalis atthis, Doubl. in Gray's Zool. Misc. p. 75².

Dismorphia nemesis, Butl. & Druce, P. Z. S. 1874, p. 362³; Staud. Ex. Schmett. p. 26⁴.

♂ alis anticis nigro-fuscis et valde angulatis, venis ad basin, maculis tribus obliquis ultra cellulam, aliisque apicem propioribus (et interdum duabus elongatis infra venam medianam) flavis; posticis plaga mediana subovali fusca sericeo-fusco circumcincta, regionem anteriorem usque ad venam medianam occupante, triente anali et macula apicalem versus flavis, litura infra venam medianam et margine apicem versus fuscis, ciliis flavis: subtus anticis sericeo-fuscis, plaga mediana pallide fusca, apicibus rufescentibus et griseo atomatis; posticis rufescenti-fuscis, fascia irregulari maculosa fere obsoleta a margine interno ad costam extendente pallidiore maculisque indistinctis, aliis griseo atomatis angulum analem versus flavo notatis et rufo atomatis.

♀ alis anticis fuscis, margine interno late (in cellulam extendente), macula irregulari costali ad cellulæ finem, secunda subovata marginem externum propiore aliisque minutis apicem propioribus sulphureis; posticis sulphureis, apice et margine externo fusco limbatis: subtus fere ut supra, sed pallidioribus et posticis rufo-fusco atomatis.

Hab. MEXICO, Omilteme, Atoyac (*H. H. Smith*), Cuesta de Misantla (*M. Trujillo*), Jalapa (*F. D. G., Deppe, Schaus*), Orizaba (*H. J. Elwes*); GUATEMALA, Chuacus, Central and Polochic valleys, San Gerónimo, Tablelands, Rio Chisoy, Choctum (*F. D. G. & O. S.*), Los Altos (*O. S.*), Sabo, Purula, Teleman, San Gerónimo (*Champion*); COSTA RICA (*Van Patten*³), Irazu (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Chiriqui (*Arcé*).—COLOMBIA to BOLIVIA and VENEZUELA.

This is one of the most widely distributed species of this group, occurring in abundance from Mexico to Bolivia, and hardly showing any variation throughout its range.

It is an inhabitant of the forest on the slopes of the mountain ranges, and occurs in Guatemala at least as high as 7000 to 8000 feet above the sea, but Mr. Champion took it at Teleman in the Valley of the Polochic at a very low elevation.

2. *Acmepteron cinerascens*. (*Leptalis cinerascens*, Tab. LX. fig. 8.)

Leptalis cinerascens, Salv. Ann. & Mag. N. H. ser. 4, vii. p. 415¹.

♂ alis anticis nigro-fuscis, maculis tribus in linea obliqua positis ad cellulæ finem, una in costam, altera ultra eam et tertia margini externo propiore, et duabus apicem versus griseis; posticis area anteriore usque vena mediana sericeo-fuscis, plaga subovata mediana fusca, litura a margine interno apicem versus angustiore grisea, ad basin et in margine externo fuscis: subtus anticis pallidis, plaga mediana ovali fusca sericeo circumcincta, costa et apice pallide fuscis; posticis flavescenti-fuscis, fascia transversa arcuata indistincta per cellulæ finem sordide pallidiore marginem externum versus griseo et angulum analem versus atomatis.

♀ adhuc ignota.

Hab. COSTA RICA (*Carmioli*¹); PANAMA, Chiriqui (*Arcé, Zahn*).

A. nemesis is the species to which this is allied; the yellow markings are replaced by grey; this applies only to the male, as the female of *A. cinerascens* remains yet to be discovered. A Costa-Rican example, sent us by the bird collector Carmiol, formed the type from which our description was drawn; no others have reached us from that country, though in Chiriqui it is better known.

3. *Acmepteron viridifascia*.

Dismorphia viridifascia, Butl. Cist. Ent. i. p. 83¹; Lep. Ex. p. 123, t. 46. ff. 4, 5².

♂ *A. cinerascens* persimilis, sed anticis magis angulatis maculis albescientioribus; posticis litura submediana angustiore et viridescens (nec griseo): subtus posticis fascia fere obsoleta, et hic illuc squamis sulphureis atomatis.

♀ mari similis, sed pallidiore, anticis maculis majoribus et albidis; posticis litura margine indefinita a basi per cellulam usque marginem internum anticarum angulum analem prope albida: subtus anticis fere ut supra, sed margine interno albido; posticis pallidioribus, fascia mediana maculisque quibusdam aliis indistincte notatis, sordide albidis.

Hab. COSTA RICA (*Van Patten*¹), Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).

This species is only known to us from Costa Rica and Chiriqui; it was discovered in

the former country by Van Patten, and subsequently taken by Rogers on the slopes of Irazu; it differs from both *A. cinerascens* and *A. nemesis* in having the spots of the primaries and the transverse cross-band of the secondaries of a dull greenish hue. We have a single female of this species which differs widely from that sex of *A. nemesis*; not only is the neighbourhood of the inner margin of the primaries almost entirely black, but the secondaries have the base and the outer margin very broadly fuscous.

4. **Acmepteron lala**, sp. n. (*Acmeopteron lala*, Tab. LXIV. figg. 25, 26 ♂.)

A. cinerascens quoque similis, sed alis multo latioribus, anticis maculis minoribus et posticis litura sub-mediana multo angustiore et virescenti-cinerea (nec grisea): subtus alis minus pallidis, anticis ad apicem et posticis undique purpureo-argenteo nitentibus, maculis angulum analem versus, angulo anali ipso cum ciliis in margine externo aurantiacis.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Three male specimens taken by Mr. Champion in the neighbourhood of San Gerónimo are all we know of this distinct species. It appears to be most nearly allied to *A. cinerascens*, but may be distinguished not only by the form of the transverse band of the secondaries but by the greater width and development of those wings.

We have figured one of the types from San Gerónimo.

ENANTIA.

Enantia, Hübner, Verz. bek. Schmett. p. 96.

Papilio melite of Linnæus may be taken as the type of this genus of Hübner's, of which *E. jethys* and *E. albania* are typical examples in our country. It differs from both the preceding genera in emitting the first subcostal branch at the end of the cell instead of beyond it. The upper discocellular is short; the middle discocellular is bent to a large acute angle, the lower section being longer than the upper. The male organs offer no very distinctive characters; the females of both *E. virgo* and *E. dione* have a small spiny chitinous patch in the bursa copulatrix.

The ten species we place in this genus are not all typical; they may be divided into four sections as follows:—

- | | |
|---|------------------------|
| <i>a.</i> Lower discocellular of the primaries placed at a small obtuse angle with the median | |
| | 1. <i>jethys</i> . |
| | 2. <i>albania</i> . |
| | 3. <i>mercenaria</i> . |
| | 4. <i>marion</i> . |
| <i>b.</i> Lower discocellular of the primaries placed nearly in a line with the median. | |
| <i>a'</i> . Upper discocellular of the primaries very short | |
| | 5. <i>virgo</i> . |
| | 6. <i>critomedia</i> . |
| | 7. <i>euryo</i> . |
| | 8. <i>oreas</i> . |
| <i>b'</i> . Upper discocellular of the primaries comparatively long | |
| | 9. <i>deione</i> . |
| | 10. <i>eunoe</i> . |

The first section of this genus is generally distributed throughout tropical America; the South-American portion of the second section is confined to the north-western part of the continent; while the third is restricted to our region. Their colours are to a great extent independent of those of other butterflies; but this is hardly the case with *E. dione*, the female of which resembles in pattern many other species of butterflies.

1. **Enantia jethys.** (*Leptalis jethys*, Tab. LXI. figg. 5, 6 ♂.)

Leptalis jethys, Boisd. Sp. Gén. i. p. 423¹.

Leptalis cornelia, Feld. Reise d. Nov., Lep. p. 140².

♂ alis aurantiis, anticis litura submediana a basi ultra cellulam extensa angulum analem versus curvata, margine externo, apice et macula obliqua ad cellulæ finem, fuscis, macula ovata subapicali aurantia; posticis dimidio costali sericeis, margine externo introrsum irregulariter fusco limbatis: subtus aurantiis, anticis plaga ovata farinosa cana ad basin et marginem externum versus sericeo-albis, colore fusco paginæ superioris indistincte indicatis; posticis hic illuc maculatis et irroratis.

♀ alis citrinis, anticis macula costali ad cellulæ finem, apice et margine externo introrsum valde sinuatis, fuscis, maculis binis ad apicem citrinis; posticis ad apicem macula fusca notata: subtus pallidioribus, macula costali paginæ superioris et altera irregulari obliqua subapicali pallide fuscis; posticis striga transversa ultra cellulam rufa, marginem externum versus et in costa rufo irroratis.

Hab. MEXICO¹ (*Sallé*²), Cuesta de Misantla (*M. Trujillo*), Jalapa, Orizaba (*Höge*, *F. D. G.*); GUATEMALA, Las Nubes (*Salvin*), Chisoy and Polochic valleys, San Gerónimo (*F. D. G. & O. S.*), Purula, San Gerónimo (*Champion*).

There appear to be two forms of this butterfly found in Mexico and Central America which occur together in Mexico and Guatemala; whether they are always definitely separable is perhaps an open question, as signs are not wanting showing that their distinctive markings may ultimately prove to converge; at the same time, with upwards of eighty specimens before us we are still able to separate the two forms. Fortunately we have paired specimens of both, so that we are able to assign the right females to each. The males of *E. jethys* may always be distinguished from that sex of *E. albania* by the distinct longitudinal streak of black extending over the region of the median nervure; this is wholly wanting in the other form. The female has a well-defined spot at the apical angle of the secondaries, usually absent, or at most very faintly represented, in the female of *E. albania*; these are the salient points of distinction.

As a rule the colour of *E. jethys* is a deep orange; but we have several Mexican specimens which are of a clear yellow, and we have also transitional forms. In the yellow specimens there is a tendency for the median band of the primaries to become obsolete, but in the most extreme forms a black spot between the median branches still remains.

E. jethys was described by Boisduval from a male specimen from Mexico, whence we have examples of both sexes, the female agreeing accurately with Felder's description of *E. cornelia*. In Guatemala it occurs on both sides of the Cordillera up to an elevation of about 4000 feet.

The figure on the Plate referred to the female of this species really represents that sex of *E. albania*.

2. *Enantia albania*. (Tab. LXIV. figg. 27, 28 ♂; and *Leptalis jethys*, Tab. LXI. fig. 7 ♀.)

Leptalis albania, Bates, Ent. Monthly Mag. i. p. 6¹.

Leptalis mita, Reak. Proc. Ac. Phil. 1866, p. 340².

Dismorphia citrinella, Butler & Druce, P. Z. S. 1874, p. 363 (nec Felder)³.

♂ alis aurantiis, anticis macula costali prope cellulæ finem, altera (interdum absente) exteriore, apice et margine externo, hoc bisinuato, fuscis; posticis margine externo apicem versus anguste fusco limbatis: subtus paginæ inferioris maris *E. jethys* similis, sed pallidioribus et alis minus irroratis.

♀ forma 1, feminæ *E. jethys* similis, sed posticis macula ad apicem posticarum absente (apice interdum vix fusco limbato).

♀ forma 2, alis sulphureis (nec flavis) aliter formæ primæ similis.

Hab. MEXICO, Cuesta de Misantla (*M. Trujillo*), Atoyac (*H. H. Smith*), Orizaba (*F. D. G.*), near Vera Cruz², Cordova (*Rümeli*); GUATEMALA, Motagua¹ and Polochic valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA³ (*Van Patten*), Cache (*Rogers*); PANAMA, Chiriqui, Bugaba (*Champion*), Veraguas (*Arcé*).

This is a form of *E. jethys* with no black mark over the median area of the primaries, that colour being restricted to the outer margin and two spots on the costa; the secondaries, too, have a very narrow black outer border. *E. citrinella* of Felder, as its name implies, is of a lemon rather than an orange colour and the sexes are alike.

There is a considerable diversity in the extent of the black markings in the apical portion of the primaries and in the extent of the undulations of the inner margins of the black outer border, but in no case is an orange spot isolated in the apex as in the allied form.

Regarding the females, we notice that some are of a much paler yellow than others; Mr. Bates's type is of the pale form.

We have many specimens of both sexes from the neighbourhood of Cordova in Mexico, the males agreeing with Reakirt's description of *Leptalis mita*; we have also many examples from Guatemala and other parts of Central America as far south as the State of Panama. Mr. Champion captured it on the slope of the Volcan de Chiriqui at an altitude of 4000 feet above the sea.

The figure of the male is taken from a specimen captured by Mr. H. H. Smith at Atoyac; that of the female represents the type of *E. albania* from Central Guatemala.

3. *Enantia mercenaria*. (*Leptalis mercenaria*, Tab. LXI. figg. 8, 9.)

Leptalis mercenaria, Feld. Wien. ent. Mon. v. p. 76¹.

♂ alis cretaceo-albis, anticis apice et margine externo, hoc introrsum exscissa, et posticis margine externo apicem versus anguste fuscis: subtus anticis costa et apice, et posticis omnino pallide ochraceis, anticis regione posteriore canescente et in medio farinoso: posticis strigis duabus transversis notatis.

♀ mari similis, sed anticis colore fusco in costa magis extenso, et puncto albido notato; posticis ad apicem tantum fuscis: subtus anticis albidis, macula subapicali, altera anali pallide fuscis; posticis dilutioribus strigisque transversis magis distinctis.

Hab. PANAMA, Lion Hill (*M^cLeannan*).—VENEZUELA ¹.

E. mercenaria is allied to *E. licinia* of Cramer, the male having the white spot in the apex of the primaries obsolete; the inner margin of this apex is sinuous, and the outer margin is broadly black to the anal angle. We have two specimens of this species from the State of Panama, both males, agreeing with the type from Venezuela.

4. *Enantia marion*, sp. n.

♂ alis flavo-albis, anticis ad apicem fuscis introrsum valde excissa, posticis margine externo apicem versus anguste fusco limbatis, anticis costa et apice et posticis omnino ochraceis, anticis regione posteriore sericeo-cana, in medio farinosa; posticis strigis tribus, una transversa ultra cellulam, secunda infra venam subcostalem et ultra cellulam bifurcata, tertia angustiore in costa.

♀ mari similis, sed alis magis rotundatis, anticis apice et margine externo fuscis, illo profunde, hoc leviter introrsum excavato, posticis albidis.

Hab. MEXICO, Paso de San Juan (*Schaus*); GUATEMALA, Telemán, Cubilguitz (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*).

This species has a much narrower border than *E. mercenaria*, which does not extend beyond the extremity of the second median branch on the outer margin, and there is a deep sinuosity over the upper radial.

We know but little of this species, as we have seen only two pairs—one from Guatemala and one from Nicaragua—and a few specimens from Mexico and the State of Panama. It is perhaps most nearly allied to *E. kollari*, but the subapical spot of the primaries is confluent with the rest of the wing, and not isolated as in that species; moreover the apical angle of the secondaries has no black border.

5. *Enantia virgo*. (*Leptalis virgo*, Tab. LX. figg. 14, 15 ♂, 16 ♀.)

Leptalis virgo, Bates, Ent. Monthly Mag. i. p. 5 ¹.

Dismorphia virgo, Butl. & Druce, P. Z. S. 1874, p. 362 ².

Dismorphia lubina, Butl. Cist. Ent. i. p. 83 ³; Lep. Ex. p. 124, t. 46. ff. 6, 7 ⁴; Butl. & Druce, P. Z. S. 1874, p. 362 ⁵.

Dismorphia lunina, Butl. Cist. Ent. i. p. 111 ⁶; Lep. Ex. p. 124, t. 46. ff. 8, 9 ⁷; Butl. & Druce, P. Z. S. 1874, p. 362 ⁸.

♂ alis fuscis, anticis macula costali ultra cellulam extensa extrorsum et introrsum valde irregulari, duabus subapicalibus minoribus, tertia in margine interno, latiore in margine ipso flavescenti-albis; posticis dimidio costali margaritaceo-argenteo, plaga subovata in medio cana, litura circa venam medianam sulphurea (vel albida): subtus anticis margaritaceo-albis, plaga magna mediana subovata cana, et maculis paginæ superioris indicatis, apice fusco irroratis; posticis fusco-rufis undique argenteo irroratis, fascia maculosa irregulari, maculisque duabus subcostalibus argenteo-albis, punctis duobus ad basin ochraceis.

♀ mari similis, sed anticis costa apicem versus valde arcuata et apice ipso hamato, macula costali magis obliqua, maculis quatuor (nec duabus) subapicalibus, macula in margine interno absente; posticis fuscis,

area interna, apicem versus producta, flavescenti-alba: subtus anticis fere ut supra, sed dilutioribus; vitta in cellula a basi, altera inter venam costalem et subcostalem albidis, maculis subapicalibus majoribus; apice et margine externo rufis; posticis rufescentibus argenteo irroratis et maculis argenteo-albis notatis, punctis duobus ad basin ochraceis.

Hab. GUATEMALA, oak-forests, forests of Northern Vera Paz, Central valleys (*F. D. G. & O. S.*¹), Sinanja, Purula, Volcan de Atitlan (*Champion*); COSTA RICA (*Van Patten*²⁻⁸), Irazu (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Arcé*).

The transverse discal band of the primaries in this species is subject to considerable variation, especially in male examples. In the types the band is continuous; but in a Costa-Rican example, which is the type of *D. lubina* of Butler, it is divided into three spots, in other Costa-Rican specimens the severance is not quite complete, and there seems to be every gradation between the extreme forms. *D. lunina* of Butler is a name based upon a female which corresponds exactly with typical females of *E. virgo*. Females, too, seem subject to some variation; many of them are washed with yellow towards the base of the secondaries, others have this portion of the wing nearly covered with brown scales.

The range of *E. virgo* extends over a large area, as will be seen above; it is found chiefly in the mountainous districts up to an elevation of 3000 or 4000 feet.

6. *Enantia critomedia*.

Enantia critomedia, Geyer in Hübn. Zutr. ex. Schm. iv. p. 41, ff. 795, 796¹.

Leptalis critomedia, Boisd. Sp. Gén. p. 424²; Godm. & Salv. Trans. Ent. Soc. 1880, p. 125³.

♂ alis anticis fuscis, plaga obliqua a costa ad cellulæ finem, litura in margine interno eam plerumque attingente et punctis duobus subapicalibus albidis; posticis dimidio anteriore argenteo-albo, margine externo fusco, plaga submediana viridi-alba: subtus argenteo-albidis, anticis plaga ovata cana farinosa in vena mediana, ad apicem et posticis omnino sparsim brunneo irroratis, punctis ad basin duobus flavis.

♀ alis fuscis, anticis plaga obliqua a costa ultra cellulam angulum analem versus extendente, margine interno anguste, punctis tribus subapicalibus flavo-albis, area interna posticarum apicem versus extensa flavida: subtus anticis fere ut supra sed dilutioribus; posticis margine externo late pallide fusco, area interna sordide ochracea.

Hab. PANAMA, Veraguas (*Arcé*).—COLOMBIA³ and VENEZUELA, AMAZONS VALLEY and SOUTH BRAZIL¹.

This is a well-known species in South America, where it has a very wide range, but the only record we have of its occurrence in our country is a single female example sent from the State of Panama in one of Arcé's collections. In Northern Colombia it occurs in the Sierra Nevada of Santa Marta, whence we have specimens of both sexes sent us by Mr. Simons. These northern examples have the base of the wings rather darker than is usually the case in more typical Brazilian specimens; this is due to the absence of the light streak over the median nervure, but the extent to which this streak is developed is very variable.

7. **Enantia euryope.** (*Leptalis euryope*, Tab. LX. figg. 12, 13 ♂.)

Leptalis euryope, Lucas, Rev. Zool. 1852, p. 297¹; Hew. Ex. Butt., *Leptalis*, t. 3. f. 17².

♂ alis fusco-nigris, anticis macula transversa a costa ultra cellulam angulum analem versus extendente et introrsum valde sinuata, sulphurea, punctis subapicalibus minutis coloris ejusdem, macula curvata in margine interno flavescentiore; posticis plus quam dimidio costali nitente argenteo, litura a margine interno ad cellulæ finem infra venam medianam extensa, flava: subtus costa et apice pallide fuscis, hoc griseo irrorato, macula mediana subovata canescenti et sericeo albido circumcincto, maculis paginæ superioris indistincte indicatis; posticis pallide fuscis et marginem externum versus griseo atomatis, fascia maculosa arcuata per cellulæ finem a costa ad marginem internum extensa aliisque duabus, una ultra cellulæ finem, altera intra venam costalem et subcostalem coloris ejusdem, punctis duobus ad basin aurantiacis.

Hab. MEXICO (*Paris*¹, *Mus. Brit.*²), Mirador (*mus. Staud.*), Jalapa (*F. D. G.*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Senahu, Purula, Cerro Zunil, Las Mercedes, El Tumbador (*Champion*).

Both Lucas's description and Hewitson's figure were drawn up from specimens from Mexico, and we have one specimen from that country taken near Jalapa in March 1888. We have several males from Guatemala, both from the valley of the Polochic and its affluents and the mountains of the Pacific slope of the Cordillera. We have not yet detected the female, but it probably so closely resembles that sex of *E. virgo* that we have not succeeded in distinguishing it.

8. **Enantia oreas.** (*Leptalis oreas*, Tab. LX. figg. 17, 18 ♂.)

Leptalis oreas, Salv. Ann. & Mag. N. H. ser. 4, vii. p. 416¹.

E. euryope similis, sed minor, anticis macula costali flavescentiore, et macula in margine interno absente, posticis litura discali albida (nec flava): subtus anticis ad apicem, et posticis undique argenteo irroratis, fascia maculosa transversa mediana albida (nec ochracea).

Hab. PANAMA, Calobre (*Arcé*¹).

The single specimen described by Salvin, which was sent us by Arcé from the State of Panama, is the only one we have seen. The species is an isolated one, and though we have compared it with *E. euryope*, its relationship with that insect is very remote. The yellow transverse band on the primaries at once separates it from all other members of this section of the genus.

9. **Enantia deione.** (*Leptalis deione*, Tab. LX. figg. 5 ♂, 6, 7 ♀.)

Leptalis deione, Hew. Ent. Monthly Mag. vi. p. 68, Index, p. xxiv¹; Ex. Butt., *Leptalis*, t. 6. ff. 37, 38².

Dismorphia deione, Butl. & Druce, P. Z. S. 1874, p. 362³.

Dismorphia haguesa, Butl. Cist. Ent. i. p. 82⁴; Lep. Ex. p. 123, t. 46. f. 3⁵; Butl. & Druce, P. Z. S. 1874, p. 362⁶.

♂ alis anticis nigro-fuscis; maculis, una in costa ad cellulæ finem venis divisa in cellula et ultra eam extendente, altera minore infra, tertia in margine interno aliisque subapicalibus, albidis; posticis plus quam dimidio margaritaceo-argenteis, plaga magna aream internam occupante aurantio-fulva, ad basin et margine externo fuscis: subtus anticis costa et apice pallide fuscis, maculis paginæ superioris flavescentibus, area infra venam subcostalem margaritaceo-alba, plaga mediana subovali cana; posticis pallide

rufo-brunneis, ad costam flavescens ad marginem internum ochraceis, fascia maculosa per cellulæ finem area angulum analem versus rubescens, punctis duobus ochraceis ad basin.

♀ alis fuscis, maculis ad cellulæ finem et in area discali irregulariter positis, una intra venam costalem et subcostalem, altera infra eam, duabus in area discali serie subapicali aliisque tribus ad apicem ipsum flavescens (interdum albidis), margine interno a basi plus minusve ferrugineo tincto; posticis area interna ferruginea extrorsum apicem versus bene dentata, ad apicem maculis quatuor albidis: subtus fere ut supra, sed coloribus dilutioribus et maculis omnibus majoribus.

Hab. NICARAGUA, Chontales (*Belt*^{1 2}); COSTA RICA (*Van Patten*³⁻⁶); PANAMA, Volcan de Chiriqui (*Champion*).

Belt collected a good series of specimens of this species; and the male was described by Hewitson under the name it now bears. Several examples were also contained in Van Patten's collection, and though the male was recognized by Messrs. Butler and Druce under the name of *Dismorphia deione*, the female was described as *D. haguesa*.

We notice some variation in individuals of this species, as in some examples there is a prominent spot near the middle of the inner margin of the primaries, which in some is evanescent, while in others again it is wholly wanting. Some females have longitudinal rufous streaks towards the base of the primaries, but more frequently this region is wholly black, with the exception of the basal half of the inner margin.

10. *Enantia eunoe*.

Leptalis eunoe, Doubl. Ann. & Mag. N. H. xiv. p. 419¹; Doubl. & Hew. Gen. Diurn. Lep. t. 5. f. 3².

Alis anticis falcatis, nigro-fuscis, vittis duabus basalibus longitudinalibus maculaque bifida aurantiacis, fasciis duabus macularibus obliquiis apice flavis; posticis aurantiacis, fimbria lata nigro-fusca, maculis tribus apicalibus flavis.

Hab. MEXICO (*Hartweg*^{1 2}), Jalapa (*Deppe in mus. Berol., Schaus*).

We have never succeeded in obtaining specimens of this species, which was described from a female captured by Hartweg in Mexico, the exact locality not being recorded. Deppe secured two in the neighbourhood of Jalapa, which are now in the Berlin Museum, others are contained in Mr. Schaus's collection made in the same place. All these are females, so that the male still remains unknown. The nearest ally is *E. deione*, the female of which also has spots at the apex of the primaries, but there are differences in the coloration, especially in the secondaries.

PSEUDOPIERIS, gen. nov.

The species hitherto known as *Dismorphia nehemia*, though obviously structurally allied to *Dismorphia*, presents many differences, so that we think it best to separate it. The first subcostal branch of the primaries is free, and does not anchylose with the costal, as is the case in all the allied forms, there is no upper discocellular, the upper radial meeting the subcostal halfway between the origin of the middle discocellular and the first subcostal branch. The subcostal side of the cell of the secondaries is very short. Regarding the secondary sexual organs we see nothing to separate *Pseudopieris*

from *Dismorphia*; but in the form of the wings and in their coloration it departs widely, resembling the more ordinary forms of *Pierinæ*.

P. nehemia has a very wide range in Tropical America, but appears to be nowhere common; perhaps its resemblance to common white butterflies may cause it to be overlooked by collectors.

1. *Pseudopieris nehemia*.

Pieris nehemia, Boisd. Sp. Gén. p. 528¹.

Dismorphia nehemia, Staud. Ex. Tagf. p. 26, t. 15².

♂ alis cretaceo-albis viridescente vix tinctis, anticis apice et margine externo anguste fusco limbatis, hoc introrsum irregulariter sinuato: subtus anticis costa et apice cum posticis pallide ochraceis, anticis regione posteriore sericeo-albidis in medio farinosis.

Hab. GUATEMALA², Zapote (*Champion*); NICARAGUA.—SOUTH AMERICA, from Venezuela² to South Brazil^{1 2}.

We have described a specimen from Nicaragua, formerly in Mr. Bates's collection, which agrees fairly with southern examples of this species. The black outer margin of the primaries is well defined, more so than in examples from Brazil, which we suppose to be typical. We have two specimens from Guatemala in which the dark outer margin is wholly absent, but there seems scarcely grounds for separating it specifically from the more southern forms, where the width of this border appears to be a variable character. In the shape of its wings this species approaches much more closely to *Pieris* than other members of this section; the sexes, too, are alike. As regards the shape of their secondaries, moreover, the differences of neuration render *P. nehemia* and its allies very distinct from typical *Dismorphia*.

Subfam. *PAPILIONINÆ*.

In this subfamily the tibiæ of the anterior legs are furnished with a foliate appendage which is attached to the underside at various distances from the proximal end of the joint. The lower discocellular of the primaries is directed outwards, and is in nearly a continuous line with the median and its sections; the claws are simple, without appendages. These characters serve to distinguish the Papilioninæ from the Pierinæ, the other main division of the family Papilionidæ.

One of the first questions that arises concerning this subfamily is its treatment as regards genera—whether most of the numerous species should stand under one comprehensive genus *Papilio*, or whether, as advocated by some writers, a large number of genera should be recognized. This nominal subdivision has been commenced, but chiefly as regards Old-World species and those of North America. The very numerous forms of South America with which we are here mainly concerned have had little attention paid them as yet on this point.

As the species of Papilioninæ are distributed over the tropical and subtropical

portions of the whole world in greater or less abundance, this question of generic treatment can only be satisfactorily dealt with in a complete monograph of the entire subfamily. Such a task is beyond the scope of the present work. We have, however, as usual, made a number of dissections with a view to grouping the species of our country as naturally as possible. In doing so we find our conclusions as to the affinities of the various species agree so closely with C. and R. Felder's arrangement published in the portion of their 'Species Lepidopterorum' relating to the Papilioninæ, that we have adopted their system with hardly any alteration. In that work one comprehensive genus *Papilio* is employed for the greater portion of the species; this is divided into seventy-five sections, all of which are characterized at greater or less length. If the old genus *Papilio* is consistently divided, we believe that nearly every one of these seventy-five sections of Felder's work will require a generic name. We are hardly prepared to go to this length, but have proceeded on Felder's plan of using groups or sections, adding a few notes on their characters, chiefly supplementary to those given in the 'Species Lepidopterorum.'

The sexual characters (chiefly those of the male) of a number of the species mentioned below have been examined, and the results given in the notes to each group and in the figures accompanying them. These on the whole give much more satisfactory results in indicating affinities than we expected. We have, however, chiefly confined our attention to the structure of the harpes*, which in every case being highly chitinized present very definite forms which are readily compared. The valves themselves, the uncus, and scaphium do not render such good results—the scaphium especially being so very variable as to the extent to which its chitin is developed, that no characters can safely be derived from it, at least from our method of preparing the specimens.

Regarding the female organs, we have only been able to glance at their structure in such cases where the parts are sufficiently chitinized to be preserved. We believe that in other instances, perhaps in many, these parts present definite characters which, being less chitinized, are practically destroyed by our method of preparation. The most remarkable developments of the external portions of females that we have as yet found are in the group containing *P. daunus* and *P. polyxenes*, to which *P. machaon* also belongs. The vaginal orifice is highly chitinized and of complex structure, one of the most noticeable features being a thin, wide plate on either side, the outer margin of which is rounded and its edge deeply serrate. We have not ventured to use these characters, where they exist, in our definitions, but some day they will undoubtedly be brought forward for purposes of classification. That their shape has some reference to the male claspers we do not doubt, but what that relationship is we cannot at present trace.

* We have found it advisable to use the nomenclature employed by Gosse in his paper "On the Clasp-Organ ancillary to Generation in certain Groups of the Lepidoptera" (Trans. Linn. Soc. ser. 2, Zool. ii. part 6). It is not very different from that we have previously used, but goes a little more into detail in defining the various parts.

In most cases the bursa copulatrix is without the peculiar patches to which we have frequently had occasion to call attention, especially in the Pierinæ, but in others there appear to be longitudinal lines of structure with a somewhat granular surface; these lines are sometimes nearly straight, sometimes waved; this is especially the case in females of *P. polydamus* and *P. philenor*.

A. *P. zestos* group.

Papilio, Sect. v., Feld. Sp. Lep. pp. 4, 47.

In this group the secondaries are folded along the inner margin, the inner side of the fold being more or less covered with densely packed white cotton-like hairs; these in *P. zestos* and its immediate allies extend from about the middle of the fold to the anal angle, the base being covered with black hairs more loosely placed. In *P. iphidamas* the white cotton-like hairs extend throughout the fold to the base of the wing (Tab. LXV. fig. 5 shows a transverse section of the fold). The foliate appendage to the front tibia is situated about the middle of the joint. The harpes of *P. zestos* and *P. childrenæ* are very similarly formed (see Tab. LXV. fig. 3), and those of *P. iphidamas* (fig. 5 a) and *P. polyzelus* (fig. 6) do not differ essentially, all have a projection near the middle of the lower portion of the harpe. The harpes of *P. photinus* differ considerably, as will be seen from the figure (Tab. LXV. fig. 7 a); but the general structure is similar, and the characteristic projection on the lower edge is present in an exaggerated form.

The marginal lunules of the secondaries in all the above species are white.

The subsection containing *P. zestos* and its immediate allies is found in the forests of Tropical America, from British Honduras and Guatemala southwards. The subsection of which *P. iphidamas* is typical is also found over a similar area, but extends rather further northwards into Southern Mexico, and is well represented in South Brazil. *P. photinus*, on the other hand, is peculiar to our region, and has a higher range in altitude.

- a. Cotton-like hairs inside the fold of the secondaries black at the base, white from the middle to the anal angle; secondaries without opalescent tint.

1. *Papilio zestos*.

Papilio zestos, Gray, Cat. Lep. Ins. B. M. p. 47, t. 10. f. 5¹; Bates, Trans. Ent. Soc. ser. 2, v. p. 340 (note)².

Papilio sesostris, Reak. Proc. Ent. Soc. Phil. ii. p. 139³.

♂ alis nigris, ciliis inter venas albis; anticis plaga magna smaragdina a cellula usque ad marginem internum extensa, venis nigris tripartita, extrorsum profunde sinuata; posticis plaga ovali ad angulum analem coccinea: subtus fuscесcentioribus; anticis immaculatis, ad basin saturatioribus; posticis maculis sex discalibus rosaceis, tribus majoribus inter venam medianam et ramos suos, duabus angulum apicalem propioribus, sexta subanali: corpore fuliginoso-nigro, subtus coccineo maculato, capite post oculos et prothorace utrinque coccineo notatis.

♀ alis fuliginoso-nigris; anticis plaga mediana sordide alba, venis tripartita vel quadripartita parte superiore in cellula posita; posticis vitta lata discali rubra et maculis duabus ad angulum apicalem coloris ejusdem: subtus ut supra, vitta posticarum angustiore, medialiter pallidiore et venis quinquepartita.

Hab. BRITISH HONDURAS, Rio Hondo (*Blancaneaux*), Corosal (*Roe*); GUATEMALA, forests of Northern Vera Paz, Polochic valley (*F. D. G. & O. S.*), Cubilguitz, Cahabon (*Champion*); HONDURAS³ (*Mus. Brit.*^{1 2} & *Staudinger*); NICARAGUA, Chontales (*Belt, Janson*).

This is a northern form of the well-known wide-ranging *P. sesostris* of South America, the males being barely separable with certainty; but the females may be recognized by the position of the white spot of the primaries, which in *P. zestos* occupies a portion of the cell, but in *P. sesostris* is placed much nearer the anal angle of the wing, quite away from the cell and the neighbourhood of the median nervure. The male of *P. zestos* appears always to possess the crimson spot near the anal angle of the secondaries, an unstable character in *P. sesostris*.

The type specimen of this species, a female, is stated to have been taken in Honduras¹, and was figured by Gray in his Catalogue of the Lepidopterous insects of the British Museum. It was found by both ourselves and Mr. Champion in the forests on the eastern side of Guatemala, and has been traced as far north as the Rio Hondo. Southward it extends to Nicaragua, its place being taken in Colombia, including the State of Panama, by *P. tarquinius*, to which it is very closely allied, as will be seen below.

Dr. Staudinger has recently lent us a female of this species from Honduras in which the spot on the primaries is almost obsolete.

2. *Papilio tarquinius*.

Papilio tarquinius, Boisd. Sp. Gén. i. p. 296¹.

P. zestos persimilis, sed subtus fascia posticarum a margine externo magis remota.

♀ quoque margine externo posticarum nigro latiore.

Hab. PANAMA, Bugaba (*Champion*), Chiriqui (*Arcé*), Lion Hill (*M^cLeannan*). — COLOMBIA¹.

This form is very closely allied to *P. zestos*, and perhaps hardly sufficiently distinguishable from it to have a separate name; but as names have been provided for both forms, we think it better to retain them for the present.

The sole difference in the male is the greater distance of the band on the secondaries beneath from the outer margin; the dark border, too, in the female is rather wider.

Boisduval's description was based upon a female from Colombia, and specimens of that sex in our own and Dr. Staudinger's collections agree with it. In our country it appears to be confined to the State of Panama; but it will be noted that as yet we have seen no specimens of this form from Costa Rica; we think, however, that *P. tarquinius*

would be found there rather than *P. zestos*, and that the latter terminates its range in Nicaragua.

3. ***Papilio childrenæ*.** (Tab. LXV. figg. 1 ♂, 2 ♀; 3, right harpe.)

Papilio childrenæ, Gray, Griff. An. Kingd. xv. p. 673, t. 38. f. 1¹; Felder, Wien. ent. Mon. v. p. 73²; Reise d. Nov., Lep. p. 21³.

Papilio sesostris, var. *a*, Gray, Cat. Lep. Ins. B. M. p. 58⁴.

♂ *P. zestos* affinis; macula smaragdina anticarum multo majore cellulæ dimidium occupante, macula ultra cellulam bifida albicante, plaga coccinea posticarum quoque multo majore, cellulam attingente.

♀ valde distincta, alis nigro-fuscis lunulis ciliaribus angustis albidis; anticis macula elongata quadripartita, altera majore ad marginem internum bipartita, pallide ochraceis; posticis fasciola discali coccinea ad angulum apicalem maculosa ad angulum analem integra.

Hab. GUATEMALA, Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*); PANAMA, Bugaba (*Champion*), Veraguas and Sante Fé (*Arcé*).—COLOMBIA^{2 3}.

This beautiful species was first described by G. R. Gray from a specimen in Mrs. Children's collection said to have come from Brazil¹. The locality is doubtless erroneous, as it has since been ascertained only to extend from Colombia northwards into Central America. Gray subsequently considered it to be but a variety of *P. sesostris*⁴; in this, however, he was clearly wrong, as Dr. Felder has already shown^{2 3}. The males of the two species resemble one another, but may readily be distinguished by the larger size of the green spot in *P. childrenæ*, and the presence of a bifid white spot beyond the cell, a feature only found in the present species.

The females diverge more widely—*P. childrenæ* having two clusters of spots on the primaries instead of one; of these one set is near the costa beyond the cell, the other approaches the middle of the inner margin.

Probably the nearest ally to this species is *P. ædippus* of Lucas (Castelnau's 'Voyage,' iii. p. 197, t. 2. f. 4), which has the same extent of green colouring on the primaries, but wants the white spot beyond the cell.

The distribution of *P. childrenæ* in our country corresponds very nearly to that of *P. zestos*, but we have not traced it quite so far north; its southern range is more extensive, as it embraces Colombia.

The figures represent a male and female from Chontales, Nicaragua.

b. Cotton-like hairs inside the fold of the secondaries white throughout; an opalescent tint on the secondaries of the male.

a'. Outer margin of the secondaries very slightly dentate.

4. ***Papilio iphidamas*.** (Tab. LXV. figg. 5, section of fold; 5 *a*, right harpe.)

Papilio iphidamas, Fabr. Ent. Syst. iii. p. 17¹; Gray, Cat. Lep. Ins. B. M. p. 44, t. 8. f. 1²;

Mén. Cat. Petr., Suppl. p. 68³; Felder, Sp. Lep. p. 5⁴; Butl. & Druce, P. Z. S. 1874, p. 363⁵.

Papilio serapis, Mén. Cat. Mus. Petr. p. 5⁶.

Papilio achelous, Hopff. Stett. ent. Zeit. 1866, p. 22⁷.

Papilio lycimenes, Boisd. Lép. Guat. p. 7⁸; Butl. & Druce, P. Z. S. 1874, p. 363⁹.

Papilio echelus, Reak. Proc. Ent. Soc. Phil. ii. p. 138 (nec Hübner?)¹⁰.

♂ alis nigris; anticis macula magna olivaceo-viridi interdum cellulam entrante, vena mediana et ramis suis partita, macula altera ultra eam sordide alba interdum bipartita, interdum tripartita; posticis vitta discali coccinea certa luce opalescente in tribus usque ad sex venis divisa: subtus fuliginoso-nigris anticarum apicibus pallidioribus, macula sordide alba sicut in pagina superiore sed majore; vitta posticarum rosacea.

♀ fuliginoso-nigris; anticis vitta obliqua per cellulæ finem venis quadripartita sordide alba; posticis vitta discali coccinea: subtus ut supra, vitta posticarum magis rosacea et venis divisa.

Hab. MEXICO^{2 4}, Vallalolid in Yucatan (*Gaumer*), Teapa in Tabasco (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Northern Vera Paz, Polochic and Motagua valleys, Yzabal (*F. D. G. & O. S.*), Chiacam, Cahabon, Panima, San Juan, and Mirandilla (*Champion*); HONDURAS^{2 3 4}; NICARAGUA^{4 5} (*Zettling*¹⁰), Chontales (*Belt*); COSTA RICA (*Van Patten*^{5 8 9}), Caché (*Rogers*); PANAMA, Volcan de Chiriqui, David (*Champion*), Chiriqui, Veraguas, Calobre (*Arcé*), Taboga I. (*Champion*), Lion Hill (*M. Leannan*).—COLOMBIA.

Fabricius's name was based upon one of Jones's drawings which represented a female *Papilio* of this form from an unknown locality¹. With this figure Gray identified specimens from Mexico and Honduras in the British Museum², remarking at the same time that the white spot on the primaries was larger in the figure than in the specimens before him.

Dr. Felder agreed in this identification⁴; but Boisduval⁸ considered that the description was equally applicable to six or seven species, and in his *Lepidoptera of Guatemala* named the Mexican species *Papilio lycimenes*. We adhere to Gray's application of Fabricius's name, the discrepancy in the width of the band of the primaries being of no importance, as is shown in our series of specimens.

The males of this species vary greatly as to the markings of the primaries. The olive-green spot differs much in size and shape: in some specimens it enters the cell, in others it only reaches the median nervure; occasionally it passes the submedian in the direction of the inner margin, but more frequently it does not even touch it. So too with the whitish spot, which is sometimes single and nearly round, and is then usually situated in the angle between the median nervure and its second branch, sometimes it passes into the cell, and even beyond it, in the direction of the costa. So also with the red band of the secondaries, which sometimes consists of only three contiguous portions, at others it extends towards the apical angle as isolated spots. Females are also variable both as to the width of the oblique band of the primaries and the number of segments into which it is divided by the nervures. The red band of the secondaries also varies in width. From this it will be seen that *P. iphidamas* is a very variable species; moreover the variations do not appear to be in any way localized. In Colombia and

other portions of Northern South America several closely allied forms are found, and *P. iphidamas* itself occurs in the neighbourhood of Santa Marta.

P. iphidamas is one of the commonest species throughout our country. It has not yet reached us from the forest region of the Mexican State of Vera Cruz, and we have only a single female example from Teapa, and but few from Yucatan and British Honduras. It abounds in the low-lying forest lands of Vera Paz, but is scarce in similar country bordering on the Pacific. From Guatemala to the State of Panama it is probably found in all suitable localities up to an elevation of 2000 to 3000 feet.

Mr. Reakirt includes *P. echelus* of Hübner in his list of Mr. O. Zættling's collection from Nicaragua¹⁰; this must either be a wrong determination or a wrong locality, perhaps the present species should have been referred to.

5. *Papilio alyattes*.

Papilio alyattes, Feld. Wien. ent. Mon. v. p. 73¹; Reise d. Nov., Lep. p. 26, t. 6. ff. *e*, *f*².

P. iphidamas persimilis et forsan vix distinguendus, fascia posticarum coccinea a margine externo magis remota tantum diversus.

Hab. PANAMA (*Ribbe, mus. Staud.*).—COLOMBIA^{1 2}.

A single male specimen submitted to us by Dr. Staudinger agrees very well with Felder's figure of *P. alyattes* and the specimens sent us by him under that name. It is very closely allied to the forms of *P. iphidamas* in which the light spot on the primaries is small and the olive-green spot spreads towards the inner margin. The red band of the secondaries is situated just beyond the cell, and is thus farther removed from the outer margin than is the case in *P. iphidamas*.

6. *Papilio erithalion*.

Papilio erithalion, Boisd. Sp. Gén. i. p. 295¹; Butl. & Druce, P. Z. S. 1874, p. 363²; Felder, Reise d. Nov., Lep. p. 25, t. 6. f. *d*³.

Papilio pyrochles, Doubl. Ann. & Mag. N. H. xiv. p. 416⁴; Gray, Cat. Lep. Ins. B. M. p. 46, t. 9. f. 2⁵.

♂ *P. iphidamas* similis, sed anticis macula sordide alba nulla; posticis macula coccinea plerumque multo minore.

♀ a ♀ *P. iphidamas* vix differt.

Hab. PANAMA, Calobre (*Arcé*), San Miguel, Pearl Is. (*Champion*), Lion Hill (*M. Leannan*).—COLOMBIA^{1 3 4}.

This species is a close ally of *P. iphidamas*; the most obvious difference is the absence of the whitish spot in the primaries; the red spot, too, on the secondaries seems to be usually smaller, and, so far as we can see, is seldom carried into the apical angle as in many instances in the allied form. The name *P. erithalion* was based upon female specimens stated to have come from Colombia and Jamaica¹, but the latter locality is doubtless erroneous. *P. pyrochles* of Doubleday came from Colombia⁴, and was

described from a male specimen. It is generally admitted that these names refer to sexes of the same species. According to Felder³ the butterfly figured by Gray as *P. erithalion* really represents a female of *P. zeuxis* of Lucas, also a Colombian species.

Messrs. Butler and Druce include this species in their list of Costa-Rican butterflies², but we are unable to find in Van Patten's series any specimens really belonging to it. The most northern point to which we can trace it with certainty is Calobre in the State of Panama. On the line of the Panama railway it appears to be far from uncommon.

7. *Papilio sadyattes*. (Tab. LXV. fig. 4 ♂.)

Papilio sadyattes, Druce, Ent. Monthly Mag. xi. p. 36¹.

♂ alis nigris, lunulis ciliaribus marginalibus inter venas albis; anticis macula albida mediana ramum medianum juxta; posticis maculis tribus coccineis certa luce opalescentibus: subtus fuscescentioribus, maculis ut in pagina superiore; posticis duabus alteris ad angulum apicalem.

♀ ignota.

Hab. COSTA RICA (*Van Patten*¹).

We have three examples of this species, which seems to be quite distinct from all others, having no olive-green patch on the primaries, and only a very small whitish spot in the centre of those wings. We are not acquainted with the female, and of the male the three specimens before us, one of which we figure, are all that we have seen. Its nearest ally is *P. cauca* of Staudinger from Northern Colombia, but in that species the primaries are spotless.

8. *Papilio polyzelus*. (Tab. LXV. fig. 6, right harpe.)

Papilio polyzelus, Felder, Reise d. Nov., Lep. p. 24, t. 6. f. a¹; Sp. Lep. p. 5².

Papilio anchises, Gray (nec Linn.), Cat. Lep. Ins. B. M. p. 64³.

♂ alis nigris, lunulis ciliaribus albidis; anticis immaculatis; posticis maculis quinque discalibus venis bene separatis coccineis, certa luce opalescentibus: subtus ut supra, sed maculis posticarum medialiter rosaceis.

♀ mari similis, sed alis magis fuliginosis, luce opalescente absente, maculis posticarum fere confluentibus, ad angulum analem extensis.

Hab. MEXICO (*Sallé*¹), Sierra Madre de Tepic (*Richardson*), Acaguizotla, Tierra Colorada, La Venta (*H. H. Smith*), Oaxaca (*Fenochio*), Cordova (*Rümeli*), Orizaba (*Elwes*), Coatepec (*Brooks*), Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Sarstoon (*Blanca-neaux*); GUATEMALA, Polochic valley, Pacific coast (*F. D. G. & O. S.*), Sabo, Cahabon, Purula, Cerro Zunil (*Champion*), Las Nubes (*O. S.*); HONDURAS^{2 3} (*mus. Staud.*).

P. polyzelus is a characteristic species of Mexico, Guatemala, and Honduras, to which countries its range is limited; here, however, it appears to be abundant from the sea-level up to an elevation of 3000 to 4000 feet. It was described by Felder from specimens obtained by Sallé in Southern Mexico¹. Its most northern limit, so far as we have traced it, is the Sierra Madre de Tepic, where Mr. Richardson recently obtained specimens in crossing the Sierra to Bolaños.

b'. Outer margin of the secondaries deeply dentate.

9. *Papilio photinus*. (Tab. LXV. figg. 7, section of fold; 7*a*, right harpe.)

Papilio photinus, Doubl. Ann. & Mag. N. H. xiv. p. 415¹; Gray, Cat. Lep. Ins. B. M. p. 65, t. 11. f. 2²; Butl. & Druce, P. Z. S. 1874, p. 363³.

♂ alis fuliginoso-nigris certa luce cæruleo lavatis, præsertim dimidio posticarum distali; posticis maculis serie duplici margine externo plus minusve parallelibus, una submarginali lunulatis, altera discali fere rotundis, coccineis: subtus fuliginosis, maculis posticarum ut supra, sed minoribus et omnibus plus minusve nigro circumcinctis.

♀ mari similis, sed major, et alis magis fuliginosis sed cæruleo quoque lavatis, maculis posticarum majoribus.

Hab. MEXICO^{1 2}, Mazatlan, Presidio de Mazatlan, Campala (*Forrer*), Acapulco (*A. H. Markham*), Oaxaca (*Fenochio*), Jalapa (*Höge*); BRITISH HONDURAS, Rio Hondo (*Blancaneaux*), Corosal (*Roe*); GUATEMALA, Dueñas (*F. D. G. & O. S., Champion*), Chuacus, San Gerónimo, Chisoy valley (*F. D. G. & O. S.*); HONDURAS (*mus. Staud.*); COSTA RICA (*Van Patten*³).

Papilio photinus is an isolated species with no near allies; though belonging strictly to this group, the sexes so closely resemble one another that the female as well as the male partakes of the blue gloss which pervades the wings in certain incidents of light. It is by no means uncommon in Mexico and Guatemala from the neighbourhood of Mazatlan southwards. Its range in altitude is considerable, extending from the sea-level to a height of at least 5000 feet. Southward of Guatemala it is apparently more scarce; Dr. Staudinger possesses specimens from Honduras, and we have but a single specimen from Costa Rica.

10. *Papilio dares*.

Papilio dares, Hew. Trans. Ent. Soc. ser. 3, v. p. 561¹; Ex. Butt., *Papilio*, t. 11. f. 34².

♀ alis brunneo-nigris, ciliis inter venas albis; anticis macula parva discali supra venam medianam alba; posticis leviter cæruleo lavatis, maculis discalibus in serie arcuata duplici posita rubris, ad angulum apicalem fere confluentibus, margine externo leviter dentato dente mediano longiore: subtus fere omnino ut supra: capite, thoracis et corporis lateribus rubro maculatis.

♂ adhuc ignotus.

Hab. NICARAGUA (*mus. Hew. in Mus. Brit.*^{1 2}).

We only know this species from the single female specimen in the Hewitson collection. Its position in the genus is somewhat doubtful, but from the slight blue opalescence on the secondaries we think it comes near to *P. photinus*, differing, however, in many respects, notably in the presence of a small white discal spot on the primaries, the slighter dentation of the secondaries, the greater distance of the outer discal row of red spots from the margin, &c.

B. P. MONTEZUMA group.

Papilio, Sect. vi., Feld. Sp. Lep. pp. 6, 49.

The fold on the inner margin of the secondaries encloses a patch of white cotton-like

hairs as in *P. iphidamas*, &c., but the fold is less complex (Tab. LXV. fig. 8). The foliate appendage of the fore tibia is placed a little nearer the proximal than the distal end of that joint; the harpe of the male ends in a single point which falls near the extremity of the valve, and the whole harpe lies along the upper rather than the lower edge of the valve, and there is no projection anywhere along its lower edge (see Tab. LXV. fig. 8 a). The secondaries have no opalescent gloss.

This group is chiefly found in Brazil, where six or seven species occur. The two following species are peculiar to our country, and there is a very remarkable one found in the island of Cuba.

11. *Papilio montezuma*. (Tab. LXV. figg. 8, section of fold; 8 a, right harpe.)

Papilio montezuma, Westw. Arc. Ent. i. p. 67, t. 18. f. 3¹.

Papilio tulana, Reak. Proc. Ent. Soc. Phil. ii. p. 140².

Papilio perrhebus, Mén. Cat. Mus. Petr. p. 5 (nec Boisd.)³.

♂ alis fuliginosis; posticis lunulis quinque submarginalibus coccineis notatis: subtus ut supra, sed magis fuliginosis, posticis lunulis septem submarginalibus coccineis nigro circumcinctis.

♀ mari similis, sed plerumque major; posticis macula altera coccinea ad angulum apicalem.

Hab. MEXICO¹, Presidio, Campala in Sinaloa (*Forrer*), Sierra Madre de Tepic, San Blas (*Richardson*), Dos Arroyos, Rio Papagaio, Tierra Colorada, La Venta, Acaguizotla (*H. H. Smith*), Acapulco (*Markham*, *H. H. Smith*), Oaxaca (*Fenochio*), Valladolid in Yucatan (*Gaumer*), Chiapas (*Zaettling*²); GUATEMALA, Volcan de Santa Maria 5000 feet (*O. S.*), El Reposo (*Champion*), Pacific coast, Motagua and Central valleys (*F. D. G. & O. S.*); HONDURAS³ (*mus. Staud.*); NICARAGUA, Chontales (*Belt*).

Professor Westwood described this species from a specimen from Mexico¹, and it is now known to be widely spread in that country, chiefly, but not exclusively, on the Pacific side of the Cordillera. Here it extends from the neighbourhood of Mazatlan southwards. In Guatemala, too, it is usually found on the side of the mountains sloping towards the Pacific, and, though chiefly a denizen of the lowlands, was met with as high as 5000 feet on the slopes of the Volcan de Santa Maria. On the eastern side of the Cordillera it is much less common, but we met with it ourselves in the valley of the Motagua and in other valleys of Central Guatemala.

Papilio montezuma has no near ally in our region, unless it be *P. alopis* from the Sierra Madre of Durango.

In South America *P. perrhebus* of Brazil and the Argentine Republic is probably nearest to it, as Professor Westwood has already pointed out¹.

12. *Papilio alopis*. (Tab. LXV. figg. 10, 11.)

Papilio alopis, Gray, List Lep. Ins. B. M. p. 58 (1856) (descr. nulla).

♀ *P. montezumæ* affinis; anticis magis elongatis, angustioribus; posticis magis dentatis, vena mediana producta fere spatulata, lunulis submarginalibus fere albis, tribus ad angulum analem proximis tantum rosaceis,

maculis quatuor alteris lunulis subparallelibus rotundis albis : subtus ut supra, posticis lunulis submarginalibus coccineis nigro circumcinctis ; macula altera alba ad angulum apicalem.

♂ ignotus.

Hab. MEXICO¹, Los Remedios in Chihuahua (*Buchan-Hepburn*), Ciudad in Durango (*Forrer*).

Of this beautiful species we have as yet only seen three female examples ; but if our surmise as to its relationship with *P. montezuma* is correct, the male will be found not to differ materially in coloration. Besides its longer tails and deeper dentation of the outer margin of the secondaries, the row of four white discal spots at once distinguishes the species from *P. montezuma*. *P. alopheus* is found in a district of Mexico which has hitherto been but little explored, so far as its Lepidoptera are concerned ; in other branches of zoology this region presents several peculiar features, so that the occurrence of a new *Papilio* there is not to us a matter of surprise.

There is a female specimen in the British-Museum collection, said to be from Mexico, under the uncharacterized name of *P. alopheus* of Gray. This name we now adopt.

C. P. MYLOTES group.

Papilio, Sect. vii. Subsect. B, Feld. Sp. Lep. pp. 7, 49.

The fold of the inner margin of the secondaries differs considerably from that of *P. iphidamas* and its allies ; the inner edge of the wing is furnished with long black hairs which are contained in a small fold along the edge of the wing, and the wider inner fold is lined with black scales, but there are no cotton-like hairs as in *P. iphidamas* (Tab. LXV. fig. 9). The foliate appendage to the fore tibia is nearly in the middle of the joint. The harpe is a long rod, curved at its distal end, where it has two strong spines or horns (see Tab. LXV. fig. 9 a). The marginal lunules of the secondaries are red, and those wings have no opalescent gloss.

This is a group very numerous in species throughout Tropical America, only two of which occur within our limits. These have a very similar range to *P. iphidamas* and its allies and are found in the same forests.

13. *Papilio mylotes*. (Tab. LXV. figg. 9, section of fold ; 9 a, right harpe.)

Papilio mylotes, Gray, List Lep. B. M. p. 64 (1856)¹ ; Bates, Trans. Ent. Soc. ser. 2, v. p. 346 (note)² ; Butl. & Druce, P. Z. S. 1874, p. 364³.

Papilio caleli, Reak. Proc. Ent. Soc. Phil. ii. p. 138⁴.

Papilio tonila, Reak. Proc. Ent. Soc. Phil. ii. p. 140⁵.

Papilio alcamedes, Feld. Reise d. Nov., Lep. p. 36, t. 7. f. c⁶.

Papilio aristomenes, Feld. Reise d. Nov., Lep. i. p. 38, t. 7. f. a⁷.

Papilio eurimedes, Boisd. Lép. Guat. p. 6⁸.

♂ alis nigris ; anticis plaga subtriangulari infra venam medianam, ramis suis divisa, viridi-olivacea, parte distali macula subrotundata albida conjuncta, macula altera interdum supra eam in cellula viridi-olivacea plus minusve circumcincta ; posticis plaga magna discali cellulæ parte distali occupante coccinea : subtus

magis fuliginosis; anticis maculis albidis paginae superioris majoribus, colore viridi-olivaceo absente; plaga coccinea posticarum medialiter rosacea minore cellulæ finem haud occupante et venis quinquepartita.

♀ fuliginoso-nigris; anticis fascia obliqua a ramo mediano secundo ad venam subcostalem extendente; posticis fascia discali coccinea cellulæ finem haud occupante: subtus fascia anticarum majore posticarum minore, medialiter rosacea et venis quinquepartita.

Hab. MEXICO ¹ (*Sallé* ⁷), Teapa in Tabasco (*H. H. Smith*); GUATEMALA ⁵, Copan river (*Zoettling* ⁴), Forests of Northern Vera Paz (*F. D. G. & O. S.*), Cubilguitz, San Juan, Panima (*Champion*), Polochic valley, Izabal, Dueñas, Pacific coast (*F. D. G. & O. S.*), Las Mercedes, El Tumbador (*Champion*); HONDURAS ⁸; NICARAGUA (*Delattre* ^{1 2}), Chontales (*Belt*), Grey Town (*Muncaster*); COSTA RICA (*Van Patten* ³).

This is a localized form of *P. eurimedes* of Guiana and the northern portion of South America, from which it differs in several particulars. The wings, especially the secondaries, are wider; both the olive-green and whitish spots of the primaries usually enter the cell; the scarlet spot of the secondaries does not extend so far towards the base of these wings, it only just enters the cell and leaves a comparatively narrow black outer border. In the female this red band does not enter the cell at all, and the outer border is also narrow.

Mr. Bates first fully described this species in 1860 ² from specimens in the British Museum, taken in Nicaragua by the French collector Delattre. He adopted the name proposed by G. R. Gray ¹, who, however, gave the species no differential characters. As we recognize this species as the only one with red ciliar lunules extending from Southern Mexico to Costa Rica, all the names given above, which were based either on male or female specimens, fall as synonyms of *P. mylotes*. The species is a very common one in the low-lying lands of Central America on both sides of the Cordillera. It is abundant in Teapa in the Mexican State of Tabasco, but does not penetrate much further into Mexico, though Sallé found it probably near Cordova in Vera Cruz.

P. mylotes has a great resemblance to *P. iphidamas*, found in the same country; but the colour of the lunules of the ciliæ at once distinguishes both sexes, moreover the male is devoid of the opalescent gloss which pervades the secondaries of *P. iphidamas*. As in that species the spots of the primaries are subject to great variation as to size and shape. In the male the olive-green spot containing a whitish one spreads into the cell; this is not the case in the following species nor in *P. eurimedes*.

14. *Papilio mycale*, sp. n. (Tab. LXV. figg. 12 ♂, 13 ♀.)

♂ *P. mylotes* similis, sed anticis macula viridi-olivacea omnino infra venam medianam, cellulam nullo modo occupante, maculis albidis ultra eam nullis, plaga coccinea posticarum multo minore et angustiore cellulæ finem transeunte: subtus anticis immaculatis plerumque distinguendus.

♀ margine posticarum externo latiore forsan distinguenda.

Hab. PANAMA, Bugaba (*Champion*), Chiriqui, Veraguas (*Arceé*), Lion Hill (*M^cLeannan*).
—COLOMBIA.

P. mycale is a close ally of *P. mylotes*, but is apparently distinguishable by the

characters given above; these are more positive in Chiriqui examples than in those from the rest of the State of Panama, where a trace of the whitish spots on the primaries is sometimes present. The size and shape of the olive-green patch of the primaries varies considerably, but never enters the cell; so too the scarlet spot of the secondaries varies in size, but never approaches the outer margin so closely as in *P. mylotes*.

D. P. POLYDAMAS group.

Papilio, Sect. viii. Subsect. A, B, C, Feld. Sp. Lep. pp. 9, 51.

The fold along the inner margin of the secondaries in this group is narrow, the outer portion of the inner surface is covered with short isolated scales, followed by semierect more closely-set scales, and these again by a glabrous elongated patch running along the bottom of the fold. A transverse section of the fold of *P. philenor* is shown on Tab. LXV. fig. 18.

The foliate appendage of the fore tibia is nearly in the middle of the joint.

The harpes of *P. polydamas*, *P. lycidas*, and *P. philenor* are very similar; they are short, not reaching to the middle of the valve; at the distal end they expand into two well-developed horns (see Tab. LXV. figg. 14, 17, 18 a). The harpe of *P. lycidas* is the most distinct of the three, and has a small third horn on the upper edge.

The general colour of the wings is green, more or less glossy, and in the section containing *P. philenor* the median nervure of the secondaries generally bears a small spatule.

Of the members of this group *P. polydamas* has a very wide range, chiefly in Tropical America. *P. philenor* belongs rather to North America, and is not found beyond the limits of Mexico. The other species are of more restricted range, and either belong to the more northern portions of South America or are peculiar to our region.

15. *Papilio polydamas*. (Tab. LXV. fig. 14, right harpe.)

Papilio polydamas, Linn. Mus. Ulr. p. 192¹; Syst. Nat. i. p. 747²; Cram. Pap. Ex. t. 211. ff. D, E³; Boisd. Sp. Gén. p. 321⁴; Bates, Trans. Ent. Soc. ser. 2, v. p. 228⁵; Reak. Proc. Ent. Soc. Phil. ii. p. 141⁶; Butl. & Druce, P. Z. S. 1874, p. 364⁷; Druce, P. Z. S. 1876, p. 245⁸; W. H. Edwards, Papilio, ii. p. 122⁹; Staud, Ex. Tagf. p. 12, t. 8¹⁰.

♂ alis nigricanti-olivaceis, fascia communi submarginali maculis composita, ciliisque inter venas olivaceo-citrinis: subtus nigricantibus, anticarum apicibus et posticis pallidioribus purpureo lavatis; anticis fascia submarginali ut supra, maculis ad apicem evanescentibus, ad angulum analem majoribus; posticis maculis submarginalibus septem bilunulatis saturate cinnabarinis utrinque nigro marginatis; macula ad basin costæ, corporis lateribus et prothorace eodem colore notatis.

♀ mari similis, sed major; alis supra maculis olivaceo-citrinis obscurioribus et subtus maculis cinnabarinis rubescentioribus.

Hab. NORTH AMERICA, Florida⁹.—MEXICO, Mazatlan, Tres Marias Is. (*Forrer*), San Blas, Sierra Madre de Tepic (*Richardson*), Acapulco (*A. H. Markham*), La Venta in Guerrero (*H. H. Smith*), Oaxaca (*Fenochio*), Cordova (*Rümeli*), Atoyac, Teapa (*H. H.*

Smith); GUATEMALA, Polochic and Motagua valleys, Pacific coast (*F. D. G. & O. S.*), Cubilguitz, Chacoj, El Reposo (*Champion*); HONDURAS (*Zoettling*⁶); NICARAGUA⁵, Chontales (*Belt*); COSTA RICA (*Van Patten*⁷); PANAMA, Chiriqui (*Arcé*), Bugaba, David (*Champion*), Lion Hill (*M'Leannan*).—SOUTH AMERICA generally from Colombia to the Argentine Republic; ANTILLES, Bahama Is., Cuba, San Domingo, Jamaica, St. Thomas.

P. polydamas is one of the most widely ranging of the American species of the genus, and is found over nearly the whole of South America, except the extreme south and the more arid portions of the west coast. It occurs in the more northern of the West Indies, and has been taken in Florida⁹; it is generally distributed in Central America, and is found in the more tropical portions of Mexico, but apparently avoids the high land and the States of the northern frontier. Mr. Bates says that on the Amazons it frequents gardens and semi-cultivated or neglected ground, and he inferred that its wide distribution was probably due to the clearing of the forests by man⁵.

On the whole the species is very constant in its markings, and may be distinguished without difficulty from the allied forms of more restricted range found in South-eastern Brazil and some of the islands of the West Indies. In Guatemala we observed it exclusively in the low-lying lands on both sides of the Cordillera. Its vertical range hardly exceeds 3000 feet.

16. *Papilio lycidas*. (Tab. LXV. fig. 17, right harpe.)

Papilio lycidas, Cram. Pap. Ex. t. 113. f. A¹; Boisd. Sp. Gén. i. p. 317²; Bates, Trans. Ent. Soc. ser. 2, v. p. 228³; Druce, P. Z. S. 1876, p. 245⁴; Staud. Ex. Tagf. p. 12, t. 8⁵.

Papilio erymanthus, Cram. Pap. Ex. t. 113. f. C⁶.

♂ alis viridi-æneo nigricantibus; anticis cellula et costa, posticis margine externo et venis nigricantioribus; plica abdominali introrsum, macula subapicali, aliis discalibus evanescentibus et abdomine supra sulphureis: subtus fuliginosis; anticis maculis tribus duplicibus submarginalibus apud angulum analem; posticis lunulis sex submarginalibus cinnabarinis nigro cinctis, ciliis inter venas angustissime sulphureis: prothorace et corporis lateribus ochraceo punctatis.

♀ mari similis, sed abdomine supra nigricante distinguenda; posticis plaga magna inter venam submedianam et ramum medianum primum sulphurea.

Hab. GUATEMALA, Polochic valley, Pacific coast (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*); PANAMA, Chiriqui (*Ribbe*).—SOUTH AMERICA from Colombia to Peru⁴, Amazons valley³ and Guiana^{1 6}.

This species was first described by Cramer from Surinam specimens, the female as *P. lycidas*¹, the male as *P. erymanthus*⁶. It has now been traced throughout the Amazons valley to Eastern Peru, and northwards through Colombia and Central America to Guatemala, where we obtained specimens on both sides of the Cordillera up to an elevation of about 2000 feet. Mr. Bates found it abundantly in June and July, in company with *P. belus*, at Ega, where it frequented the most humid parts of the forests of the Amazons³. Mr. Bartlett observed it on the banks of the Huallaga

and Ucayali rivers and the forest-streams of those regions, where, however, it was rare ⁴.

P. lycidas may readily be distinguished from all members of this section of *Papilio* by the yellow abdominal fold of the hind wings. The primaries are more elongated and pointed than those of other species of our region.

17. *Papilio numitor*. (Tab. LXVI. figg. 1 ♀, 2, 3 ♂.)

Papilio numitor, Cram. Pap. Ex. t. 113. f. B¹; Boisd. Sp. Gén. i. p. 317²; Bates, Ent. Monthly Mag. i. p. 2³ (nec Trans. Ent. Soc. ser. 2, v. p. 228).

Papilio latinus, Felder, Wien. ent. Mon. v. p. 72⁴; Reise d. Nov., Lep. p. 39, t. 10. f. b⁵; Godm. & Salv. Trans. Ent. Soc. 1880, p. 126⁶; Staud. Ex. Tagf. p. 12⁷.

♂ alis æneo-nigricantibus; posticis pallidioribus et magis nitentibus, maculis quatuor aut quinque submarginalibus, ea ad costam multo maxima, ea infra venam medianam minima, viridi-sulphureis: subtus brunneo-nigris, maculis tribus submarginalibus ad angulum analem inter venas plicis bipartitis flavidis; posticis maculis sex transversis cinnabarinis nigris circumcinctis, maculis sex rotundis, sæpe obsoletis, ultra eas, una supra ramum medianum primum, duabus inter venam medianam et ramum suum secundum, reliquis infra ramos juxta eas et ciliis inter venas angustissime flavidis: abdomine supra ochraceo, lateribus ochraceo punctatis.

♀ mari similis, anticis maculis ad angulum analem sicut in pagina inferiore sed minoribus; maculis posticarum majoribus et ochraceis a margine externo magis remotis, cellulam partim occupante, margine externo nigricantiore, lunulis obsoletis ochraceis introrsum limbo; abdomine supra nigricante.

Hab. GUATEMALA, San Gerónimo, Polochic valley (*F. D. G. & O. S.*³); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Irazu, Rio Sucio (*Rogers*).—COLOMBIA⁶, VENEZUELA^{4 5}, and GUIANA¹.

Mr. Bates determined specimens obtained by us in Guatemala³ to be identical with *P. numitor* of Cramer, a butterfly of Surinam. We have always considered this identification to be correct, and this is still our opinion, though Cramer's figure is not at all a satisfactory one, the band of spots on the secondaries being unusually small. As regards the range of the species, the wide gap between Guatemala and Guiana is now found to be in a great measure filled up by the extension of the Central-American insect to Costa Rica, and its reappearance in Colombia and Venezuela in precisely similar form and colour. Specimens from the last-named countries were described by Felder as *P. latinus*, a name which, if Mr. Bates's determination is correct, becomes a synonym of *P. numitor*. Like all other members of this group of *Papilio* it frequents the forest of the low-lying districts, its range in altitude probably not exceeding 3000 feet.

18. *Papilio copanæ*. (Tab. LXVI. figg. 4 ♀, 5, 6 ♂.)

Papilio copanæ, Reak. Proc. Ent. Soc. Phil. ii. p. 141 (Sept. 1863)¹; Strecker, Lep. Rhop. Het. p. 61, t. 8. f. 1².

Papilio chrysodamas, Bates, Ent. Monthly Mag. i. p. 1 (June 1864)³.

♂ præcedenti similis; anticis maculis quatuor submarginalibus ochraceis ad angulum analem; posticis fascia

maculosa multo elongata ad angulum analem producta, maculas septem composita: subtus anticis maculis indistinctis duabus ochraceis, una in cellula altera ultra eam; posticis maculis cinnabarinis multo angustioribus obscurioribus et lunulatis, maculis ultra eas ochraceis nullis.

♀ eodem modo differt.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Copan (*Zaettling*¹), Polochic valley, Chuacus (*F. D. G. & O. S.*³); HONDURAS (*Staudinger*).

Mr. Strecker's drawing of Reakirt's *P. copanæ*² shows that the type is a female of the same species as that described by Mr. Bates a few months afterwards as *P. chrysodamas*, from specimens obtained by us in Guatemala. The species may readily be distinguished from *P. munitor*, to which it bears a strong general resemblance, by the absence of submarginal ochreous spots on the secondaries beneath, and in having a row of three small double spots on the primaries near the anal angle. These, on the under surface, are continued and curve inwards so as to enter the cell. In the female this extension of these spots appears on both surfaces of the wing.

The range of *P. copanæ* appears confined to the forests of the eastern side of Central America from Yucatan to Honduras; it is by no means common, but few specimens having reached us.

Its allies in South America are *P. laodamus* of Felder and *P. belemus* of Bates from Colombia and the Lower Amazon respectively.

19. *Papilio procas*, sp. n. (Tab. LXV. figg. 15, 16.)

P. copanæ similis, sed fascia posticarum a margine externo magis distante, cellulæ finem occupante; lunulis obsoletis concoloribus inter eam et marginem externum: subtus lunulis cinnabarinis et lunulis ciliaribus latioribus.

♀ adhuc ignota.

Hab. MEXICO, San Blas (*Richardson*).

Mr. W. B. Richardson recently sent us a single specimen of a *Papilio* from San Blas, on the coast of Western Mexico, closely allied to *P. copanæ*, but differing in the width and position of the band of the secondaries, which cuts across the end of the cell instead of lying wholly outside it, and there are other small differences which we have pointed out above.

20. *Papilio lepidus*.

Papilio lepidus, Feld. Wien. ent. Mon. v. p. 72¹; Reise d. Nov., Lep. p. 40, t. 10. f. a².

♂ alis nitide atro-virescentibus certa luce viridi-æneo micantibus, ciliis inter venas angustissime albis; posticis vitta costali virescenti-alba: subtus fuculentis; anticis plaga irregulari vena mediana et ramis suis quadripartita et macula subanali virescenti-albis omnibus interdum obsoletis; posticis maculis septem submarginalibus lunulatis cinnabarinis nigro circumcinctis, macula apicali obsoleta aut nulla, punctis extrorsum obsoletis albidis, abdomine supra ad apicem virescenti-albo ad basin nigricante.

♀ mari similis, sed anticis supra plaga ochracea, vena mediana et ramis suis quadripartita notatis; posticis vitta costali angustiore ad basin haud producta; abdomine supra omnino nigricante.

Hab. PANAMA, Veraguas (*Arcé*).—COLOMBIA²; VENEZUELA^{1 2}.

Two male specimens of this species were contained in *Arcé*'s collection sent from Veraguas. These agree closely with the Venezuela type, though the submarginal whitish spots beneath are almost obliterated. The species most nearly allied to *P. lepidus* is *P. crassus*, a butterfly of wide range in South America; from this it differs in its shorter and darker wings, and in having the ochraceous spot confined to the female only and not common to both sexes, as is usual in most specimens of the allied species.

21. ***Papilio philenor*.** (Tab. LXV. figg. 18, section of fold; 18 *a*, right harpe.)

Papilio philenor, Linn. Mant. Plant. p. 535¹; Smith, Abb. Lep. Georg. i. p. 5, t. 3²; Boisd. & Lec.

Lép. Am. Sept. p. 29, t. 11³; Boisd. Sp. Gén. i. p. 324⁴; Mén. Mus. Cat. Petr. p. 6⁵.

Papilio astinous, Drury, Ill. Ex. Ent. i. t. 11. ff. 1, 4⁶; Cram. Pap. Ex. iii. t. 208. A, B⁷.

Laertias philenor, Scudder, Butt. E. U. S. ii. p. 1241⁸.

♂ alis atro-virescentibus; anticis ad apicem, margine externo et posticis omnino certa luce viridi micantibus, ciliis inter venas albis; posticis maculis sex submarginalibus glauco-albidis: subtus fuliginosis; anticis, præter apices, nigro-viridescentibus, maculis quatuor submarginalibus, ea ad angulum analem bifida et ciliis inter venas flavescens; posticis dimidio distali mox ultra cellulam viridi-æneo micante, maculis quatuor ad marginem internum suum albis, maculis septem discalibus rubro-aurantiis introrsum late extrorsum anguste nigro limbatis et omnibus supra venam medianam, macula alba ad marginem suum superiorem, macula aurantia inter venam medianam et ramum suum secundum utrinque albo marginata; lunulis marginalibus inter venas flavidis.

♀ mari similis, sed alis obscurioribus et minus nitentibus; anticis maculis quatuor aut quinque submarginalibus albis; ea ad angulum analem bifida, maculis submarginalibus posticarum albidioribus.

Hab. NORTH AMERICA³, from the lakes southward, and westward into California⁸.—MEXICO⁵, Northern Sonora (*Morrison*), Presidio de Mazatlan (*Forrer*), Acapulco (*A. H. Markham*, *H. H. Smith*), Dos Arroyos in Guerrero (*H. H. Smith*), Pinos Altos in Chihuahua and Rio Mescales (*Buchan-Hepburn*), Jalapa (*Höge*), Coatepec (*Brooks*), Orizaba, Cordova (*Sallé*), Puebla (*Richardson*), Atlixco (*F. D. G.*).

The history of this species has recently been very minutely gone into by Mr. Scudder in his work on the 'Butterflies of the Eastern United States and Canada', where will be found full descriptions of all its stages of development as well as its habits and distribution within the limits of the United States. On the Mexican side of the frontier it is widely distributed as far south as the State of Puebla. On the eastern side we have no record of its occurrence at a lower elevation than 4000 feet, but it is found on the shores of the Pacific near Acapulco and Mazatlan. Its range in altitude is therefore very considerable, and extends from the sea-level to a height of about 7000 feet in the mountains.

Some variation is noticeable in Mexican specimens. This principally affects the submarginal spots in both wings; these are sometimes obsolete, at others clearly defined; some females, too, are of a more sooty hue, due perhaps to age and exposure, others are brighter and greener.

22. **Papilio corbis.** (Tab. LXVI. figg. 7, 8 ♂.)

Papilio corbis, Godm. & Salv. Ann. & Mag. N. H. ser. 6, iii. p. 357¹.

P. philenori affinis, sed posticis fere ecaudatis: subtus margine posticarum æneo-virescente multo angustiore, maculis suis rufescentioribus distinguendus.

Hab. MEXICO, Valladolid, Northern Yucatan (*Gaumer*¹).

We have several specimens of this form of *P. philenor*, including both sexes. The males have a submarginal row of spots on the primaries just as in the females, only rather smaller; as a rule these are not present in the males of *P. philenor*.

23. **Papilio orsua.** (Tab. LXVI. figg. 9, 10 ♂.)

Papilio orsua, Godm. & Salv. Ann. & Mag. N. H. ser. 6, iii. p. 358¹.

♂ *P. philenori* quoque similis, sed multo minor et alis nitide cærulescentioribus; posticis ecaudatis, maculis submarginalibus magis rotundatis et pure albis: subtus posticis a margine usque ad cellulam nitide cyanescentibus, maculis suis saturate rubris.

♀ mari similis, sed maculis omnibus majoribus et magis distinctis.

Hab. MEXICO, Tres Marias Islands (*Forrer*¹).

This is also a form of *P. philenor*, probably peculiar to the Tres Marias Islands. As in *P. corbis* the tails of the secondaries are not developed; but it differs from that species in the bluer tint of its wings, the spots of the hind wings being of a clearer white and further from the outer margin. Beneath, the metallic blue margin of the secondaries is much wider, extending up to the cell. On the opposite mainland at Acapulco and Mazatlan the true *P. philenor* is found.

E. *P. THYMBRÆUS*, *P. BRANCHUS*, *P. PHAON*, &c. group.

Papilio, Sect. x., xi. (except Sect. x. Subsection D), Feld. Sp. Lep. pp. 10, 11, 52, 53.

The fold along the inner margin of the secondaries in both *P. thymbræus* and *P. branchus* and their allies is much simpler than in the preceding groups; the wing is not completely folded back, and the surface is covered with normal scales, the outer edge is convex. The base of the underside of the secondaries is marked with red spots, which are characteristic of the members of this group.

The distal end of the foliate appendage of the fore tibia is much nearer the distal end of that joint than its base is from the proximal end.

The harpes are, so far as we have examined them, similarly constructed. The projection on the middle of the lower surface is present in each case as in *P. zestos* &c., but the terminal portion is much more complicated, as will be seen from the figures (Tab. LXVII. figg. 2, 5, 7, 9).

All the members of the various sections of this group are South American in their domicile, none are found in the north beyond the limits of Mexico. *P. thymbræus*

and its ally are solely from our region. *P. branchus* and its allies are also nearly all of them peculiar, but have relations in Tropical South America. The same is the case with *P. phaon*.

c. General colour of the wings brownish black, secondaries with submarginal red spots.

c'. Margin of secondaries serrate, median nervure prolonged to form a short tail.

24. ***Papilio thymbræus*.** (Tab. LXVII. fig. 2, right harpe.)

Papilio thymbræus, Boisd. Sp. Gén. i. p. 302¹; Doubl. & Hew. Gen. Diurn. Lep. t. 4. f. 3²; Mén. Cat. Mus. Petr., Suppl. p. 68³; Staud. Ex. Tagf. p. 15, t. 9⁴.

♂ alis nigricantibus certa luce viridi lavatis, ciliis angustissime albis; posticis bene dentatis vena mediana producta, maculis septem in serie submarginali rosaceo-rubris, iis angulo anali proximis lunulatis, maculis alteris quinque coloris ejusdem in serie interiore positis; lineolis tribus submarginalibus ad angulum analem: subtus fusciscentioribus; anticis macula ad costæ basin rubra; posticis maculis rubris ut in pagina superiore, serie interiore magis obsoleta, maculis quatuor ad basin et linea margine interno subparallela quoque rubris, lunulis sex submarginalibus glauco-albidis, iis ad angulum apicalem duplicibus.

♀ mari similis, maculis posticarum magis rubidis.

Hab. MEXICO³, Tlatlecope (*Sallé*¹), Jalapa (*Höge*), Orizaba (*Elwes*), Cordova (*Höge*, *Rümeli*), Oaxaca (*Fenochio*); BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*); GUATEMALA⁴, Cubilguitz (*Champion*), forests of Northern Vera Paz (*F. D. G. & O. S.*), Chacoj (*Champion*), Polochic and Central valleys (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S.*, *Champion*), Dueñas (*F. D. G. & O. S.*).

Boisduval described specimens of this species from Mexico, where it is now known to be abundant over the southern portion of that country. It is also widely distributed in Guatemala, and is found at elevations varying from 1500 to 5000 feet above the sea. It has a superficial resemblance to *P. photinus*, especially as regards the distribution of the red spots on the secondaries; but the two insects are really very distinct, *P. thymbræus* lacking the opalescent lustre of *P. photinus*; it, moreover, ranges to a higher altitude in the mountains.

25. ***Papilio aconophos*.**

Papilio aconophos, Gray, Cat. Lep. Ins. B. M. p. 65, t. 11. f. 1¹.

P. thymbræo persimilis, sed posticis serie interna macularum absente.

Hab. MEXICO, Puebla (*Mus. Brit.*¹), Oaxaca (*Fenochio*).

A species of rather doubtful value, the only difference between it and *P. thymbræus* being the presence in the latter of two series of red spots in the secondaries instead of one. As this second series in *P. thymbræus* is rather variable, and shows a tendency in some specimens to become obsolete, *P. aconophos* may be only an extreme form of *P. thymbræus* in which the inner band of spots has disappeared. Our specimens,

however, are not numerous enough to show the complete gradation between the two, and we therefore treat both forms as distinct.

P. aconophos was first described and figured by Gray from a specimen from Puebla in the British Museum; this is a female. We have two examples sent us by Fenochio from the State of Oaxaca, both males, which do not differ from the type in coloration, except that the submarginal lunules are redder.

d'. Margin of secondaries undulate, no median tail.

26. *Papilio branchus*. (Tab. LXVII. fig. 7, right harpe.)

Papilio branchus, Doubl. Ann. & Mag. N. H. xviii. p. 373¹; Gray, Cat. Lep. Ins. B. M. p. 62, t. 7. f. 3²; Butl. & Druce, P. Z. S. 1874, p. 364³.

♂ alis nigris; anticis macula mediana trifida lactescenti-albida; posticis fascia maculosa discali a margine externo bene remota coccinea; ciliis inter venas albidis: subtus fuliginosis; anticis maculis ut supra; posticis fascia discali introrsum rosacea; maculis quatuor et lineola margini interno subparallela coccineis. ♀ mari similis, sed plerumque major, macula anticarum majore et fascia posticarum latiore.

Hab. MEXICO, Cordova (*Höge*), Omealca (*Trujillo*), Atoyac (*H. H. Smith*), Oaxaca (*Fenochio*); GUATEMALA, forests of Northern Vera Paz, Choctum (*F. D. G. & O. S.*), Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*), Chacoj, Teleman (*Champion*), San Gerónimo (*F. D. G. & O. S.*); HONDURAS (*Dyson*^{1 2}, *Mus. Brit.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*³).

This *Papilio* was first described by Doubleday from a specimen in the British Museum obtained by Dyson in Honduras¹. We now know that it has a wide range in Central America, but is probably more abundant in the forest country of Vera Paz than elsewhere. Its northern range probably extends throughout the State of Vera Cruz, but as yet we have not traced it beyond the neighbourhood of Cordova. Its occurrence on the western side of the continent has not yet been determined with certainty; Mr. Fenochio's specimen from Oaxaca was no doubt obtained on the eastern side of the Cordillera. In Guatemala we never met with it in the lowlands bordering on the Pacific Ocean. Its range in altitude extends to about 3000 feet above the sea.

27. *Papilio belesis*. (Tab. LXVII. figg. 3, 4 ♂; 5, right harpe.)

Papilio belesis, Gray, List Lep. Ins. B. M. p. 74¹ (1856, descr. nulla); Bates, Ent. Monthly Mag. i. p. 1².

♂ *P. brancho* similis, sed anticis immaculatis; posticis fasciæ discalis maculis magis quadratis (nec elongatis) margini externo propioribus. ♀ mari similis.

Hab. MEXICO (*Mus. Brit.*¹), Atoyac (*H. H. Smith*); GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*²), Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*²), Chacoj (*Champion*); NICARAGUA, Chontales (*Belt*).

The late G. R. Gray¹ first distinguished this species and named a specimen from

Mexico in the British Museum under the title it now bears; but he gave no description of it, and it was not until 1864 that Mr. Bates supplied this deficiency, and characterized specimens obtained by us in the interior of Guatemala². The range of *P. belesis* is almost exactly that of *P. branchus*, but as yet it has not been recorded south of Nicaragua. In Mexico and Guatemala it is a species of the eastern side of the main mountain range, and is absent from the country bordering on the Pacific Ocean.

28. *Papilio hephæstion*.

Papilio hephæstion, Feld. Reise d. Nov., Lep. p. 42, t. 6. f. *b*¹.

P. belesi similis, sed anticis macula albida bifida aut trifida medialiter notatis; posticis maculis submarginalibus rubris omnino ut in specie notata.

Hab. MEXICO (*Sallé*¹); GUATEMALA (*mus. Staud.*); HONDURAS (*mus. Staud.*).

We know very little of this species, as we do not possess any specimens, and the only ones we have as yet seen are three kindly lent us by Dr. Staudinger from Guatemala and Honduras. One of the latter is rather aberrant, the spots on the primaries being only faintly indicated, and those on the secondaries are a little more elongated than in the other examples. This specimen, therefore, is somewhat intermediate between *P. hephæstion* and *P. belesis*, with a slight divergence towards *P. branchus* itself.

29. *Papilio belephantes*, sp. n. (Tab. LXVII. fig. 6 ♂.)

P. branchus et *P. belesi* similis, ab illo anticis immaculatis, ab hoc fascia posticarum latiore differt.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA (*v. Turckheim*), Polochic valley (*F. D. G. & O. S.*); HONDURAS (*mus. Staud.*).

We have seen four specimens of this butterfly, which, though closely allied to both *P. branchus* and *P. belesis*, appears to be distinct from either, and also from *P. hephæstion*. The primaries are spotless as in *P. belesis*, but the secondaries have a scarlet band of the same width and position as in *P. branchus*.

Our two specimens from Atoyac and the Polochic valley are both females, but another submitted to us by Dr. Staudinger from von Turckheim's collection is a male, and the fourth from Honduras is also of that sex. We thus see that the sexes in this species, as in its close allies, are similarly coloured.

30. *Papilio ilus*.

Papilio ilus, Fabr. Ent. Syst. iii. p. 17¹, ex Jones Icon. ined. i. t. 29; Gray, Cat. Lep. Ins. B. M. p. 59²; Bates, P. Z. S. 1863, p. 242³; Butl. Cat. Fab. Lep. p. 238⁴; Godm. & Salv. Trans. Ent. Soc. 1880, p. 126⁵.

Papilio hostilius, Feld. Wien. ent. Mon. v. p. 73⁶; Reise d. Nov., Lep. p. 43, t. 9. f. *a*⁷.

♂ alis saturate fuscis; anticis maculis duabus infra ramum medianum, majore supra venam submedianam, altera inter ramos medianos lactescenti-albis, squamis quibusdam infra ramum radialem inferiorem;

posticis fascia discali coccinea venis medianis quadripartita; ciliis omnibus inter venas albis: subtus saturate brunneis; anticis immaculatis; posticis fascia discali ut supra, sed maculis omnibus introrsum rosaceo-albis; maculis quatuor ad basin coccineis.

♀ mari similis; anticis macula albida majore et in pagina inferiore obvia.

Hab. PANAMA, Lion Hill (*M. Leannan*³).—COLOMBIA⁵; VENEZUELA^{6 7}.

We have no doubt that Mr. Bates was correct in naming two specimens of this *Papilio* from Panama, *P. ilus* of Fabricius; and that *P. hostilius* is a synonym of the same species. Of the latter we have the Venezuelan types before us, and they agree accurately with our Panama male.

P. ilus must be a scarce insect with a very limited range. Besides the specimens already referred to, only one other example has come under our notice; this was taken by Mr. Simons at Manaure in Northern Colombia⁵.

31. *Papilio guaco*. (Tab. LXVII. fig. 1 ♂.)

Papilio guaco, Staud. Verh. zool.-bot. Ges. Wien, xxv. p. 91¹.

P. ilo similis, sed anticis angustioribus, magis falcatis, macula anticarum magis elongata et trifida, macula posticarum discali latiore cellulam fere extendente.

Hab. PANAMA, Chiriqui (*Ribbe*¹).

This is apparently a northern form of *P. ilus* of Panama, but may be distinguished by the characters mentioned above. It has only been met with by Dr. Staudinger's collectors in the neighbourhood of Chiriqui. We have a single male specimen from him, and there is another in the Hewitson collection in the British Museum.

32. *Papilio clusoculis*.

Papilio clusoculis, Butl. Cist. Ent. i. p. 85¹; Lep. Ex. p. 163, t. 58. f. 2²; Butl. & Druce, P. Z. S. 1874, p. 364³.

Alis nigricantibus; anticis macula rotunda infra venam medianam albida, ramo mediano secundo bipartita; posticis plaga magna mediana coccinea, cellulæ finem occupante, macula ad angulum apicalem, altera infra eam, et ciliis inter venas albidis: subtus fusciscentioribus; anticis plaga albida ut supra sed minore; posticis plaga mediana multo minore cellulam nullo modo occupante rosacea, venis quadripartita; lunulis quinque submarginalibus coccineis, alteris exterioribus albidis, ea ad angulum apicalem maxima, omnibus interdum obsoletis, maculis duabus basalibus coccineis; corporis lateribus coccineis, abdomine infra albido notato.

♀ ignota.

Hab. COSTA RICA (*Van Patten*^{1 2}); PANAMA, Veraguas (*Arcé*).

The types of this species formed part of the large Costa-Rican collection described by Messrs. Butler and Druce³, and are the only ones we have seen from that country, and but one has reached us from the State of Panama. The nearest ally of *P. clusoculis* is *P. euryleon* of Colombia; it may readily be distinguished from that species by the shape, colour, and position of the spot on the primaries.

d. General colour of the wings greenish black.

e'. Submarginal spots of the secondaries red.

33. *Papilio xenarchus*.

Papilio xenarchus, Hew. Ex. Butt., *Papilio*, t. 5. f. 12¹.

Alis viridescenti-nigris; anticis fascia submarginali maculosa viridi-alba; posticis fascia discali lata, venis in maculas septem elongatas divisa, coccinea; ciliis inter venas albidis: subtus fuliginoso-nigris; posticis lunulis septem submarginalibus notatis et maculis tribus ad basin coccineis; abdominis lateribus coccineo notatis.

Hab. MEXICO¹, Jalapa (*Schaus*).

This form, which has the red band of the secondaries wide, appears to be much rarer than that with the narrow band of isolated spots, *P. eridamas*, and the only examples we have seen are Hewitson's type, one without precise locality in our collection, and specimens in that of Mr. Schaus. It is a question whether these forms are really specifically distinct, but for the present we prefer to treat them so. They both occur in the same district of Eastern Mexico.

34. *Papilio eridamas*. (Tab. LXVII. fig. 10 ♂.)

Papilio eridamas, Reak. Proc. Ac. Nat. Sc. Phil. 1866, p. 248¹.

P. xenarcho similis, sed fascia maculosa posticarum multo angustiore, maculis singulis fere rotundis, primo visu distinguendus.

Hab. MEXICO¹, Atoyac (*H. H. Smith*), Cordova (*Rümeli*), Coatepec (*Brooks*), Omealca (*Trujillo*).

The width of the spotted band of the secondaries of *P. eridamas* as compared with the much wider one of *P. xenarchus* seems a safe character by which to distinguish the two forms; but there is some variation in *P. eridamas* as to the number of these spots; some of our examples have seven, others six, and one only five red spots. Those specimens in which the full complement of seven is not present have a series of small or obsolete greenish-white spots between the red spots and the outer margin, that at the apical angle being the largest. A female in Dr. Staudinger's collection has all the red spots, except that near the anal angle, sprinkled with light scales, a character we do not observe in any of our examples.

P. eridamas was first described by Mr. Reakirt from a Mexican specimen in the collection of the Entomological Society of Philadelphia¹. No special locality was mentioned, but we now know that the range of the species is limited to a very restricted area extending from Jalapa to the neighbourhood of Cordova and Atoyac.

f. Submarginal spots of the secondaries greenish yellow.

35. **Papilio phaon.** (Tab. LXVII. fig. 9, right harpe.)

Papilio phaon, Boisd. Sp. Gén. i. p. 319¹; Lép. Guat. p. 6²; Gray, Cat. Lep. Ins. B. M. p. 69³.

Alis nigris saturate æneo-viridi nitentibus; anticis fascia submarginali, maculas novem composita (ad angulum apicalem evanescente) pallide sulphurea; posticis fascia discali venis septem partita ultra cellulam aut finem ejus occupante viridi-sulphurea, maculis ultra eam septem submarginalibus sulphureis, ea ad angulum apicalem maxima, ciliis inter venas sulphureis, squamis paucis interdum ad angulum analem coccineis: subtus fuscescentibus; anticis maculis quinque submarginalibus ad angulum analem albidis; posticis lunulis sex aut septem submarginalibus et maculis tribus basalibus coccineis, punctis submarginalibus sex aut septem albicantibus: corporis lateribus coccineo punctatis.

♀ mari similis.

Hab. MEXICO¹ (*Hartweg, Mus. Brit.*³), Cordova (*Höge*), Atoyac (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*), R. Sarstoon (*Blancaneaux*); GUATEMALA, Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*), La Tinta, Chacoj, Panzos (*Champion*); HONDURAS (*Mus. Brit.*³ et *Staudinger*).—COLOMBIA?

Mexican specimens formed the basis of Boisduval's description of this species¹; and though we find it by no means rare in the hotter parts of Central Vera Cruz, we have no record of it from any portion of Western Mexico. It is found also in British Honduras, in the forest-region of Northern Vera Paz, and the lower portion of the valley of the Polochic; there are specimens also in the British Museum and in Dr. Staudinger's collection from Honduras. Southward of this, through the rest of Central America, we have no tidings of it until we come to Colombia, where specimens obtained by Dr. Lindig were described by Felder as *Papilio therodamas*. One of these examples we have before us, and it exactly resembles others from Central America of typical form. Felder's figure, however, shows some subcostal streaks near the apical angle of the primaries, which are barely visible in *P. phaon*, but more characteristic of *P. metaphaon*.

A specimen from Mexico in Dr. Staudinger's collection has a red spot near the anal angle, and three indistinct ones near the apical angle of the secondaries, thus showing a relationship to *P. xenarchus*, and it may prove that these two forms mingle in Mexico, the only country in which the red-banded forms are found.

36. **Papilio pharax**, sp. n. (Tab. LXVII. fig. 8 ♂.)

P. eridamas forsan proximus, sed anticis magis elongatis et posticis fascia discali maculosa a margine externo magis remota et maculis suis omnibus (ea ad angulum analem excepta) viridescenti-albidis.

Hab. BRITISH HONDURAS, Corosal (*Roe*).

A single male specimen of an apparently distinct species, somewhat intermediate between *P. eridamas* and *P. phaon* in coloration, is the only one we have as yet received of this form. The primaries resemble in shape and coloration those of *P. phaon*, but the spots on the secondaries are small and oval like those of *P. eridamas*; the only one, however, that is scarlet is that next the anal angle.

37. *Papilio metaphaon*.

Papilio metaphaon, Butl. Trans. Ent. Soc. 1874, p. 434¹.

Papilio phaon, Godm. & Salv. Trans. Ent. Soc. 1880, p. 126².

P. phaonti persimilis, sed anticis lineis subcostalibus ad angulum apicalem viridi-sulphureis; posticis fascia discali multo majore, grisescentiore et ferè totam cellulam occupante.

Hab. MEXICO? (*coll. Kaden*¹).—COLOMBIA².

We have some doubts as to whether this *Papilio* should be admitted into our list; the title to do so rests upon the label of the type, which was formerly in Dr. Kaden's collection, and marked "Mexico." It agrees almost exactly with the specimen named *P. phaon* by us in our list of Mr. Simon's collection from Northern Colombia; we thus think it very probable that this close ally of *P. phaon* will be found to inhabit Northern Colombia and probably Venezuela, and not Mexico at all. It is only doubtfully specifically distinct from *P. phaon*, but differs in the points mentioned above.

Mr. Butler, in his description, refers to *P. ulopos* as its nearest ally. This alliance is more remote.

38. *Papilio ulopos*.

Papilio ulopos, Gray, Cat. Lep. Ins. B. M. p. 69¹; List Lep. Ins. B. M. p. 80 (1856)².

P. phaonti quoque similis, sed anticis maculis submarginalibus vix ullis, tribus aut quatuor ad medium marginis externi tantum notatis; fascia posticarum cellulæ finem plerumque occupante.

Hab. MEXICO¹ (*Hartweg*²); BRITISH HONDURAS, R. Hondo (*Blancaneaux*), Corosal (*Roe*); GUATEMALA, Cubilguitz (*Champion*), Choctum, Polochic valley (*F. D. G. & O. S.*), Panzos, Cahabon (*Champion*); HONDURAS (*mus. Staudinger*).

P. ulopos was based upon a specimen said to have been sent by Hartweg from Mexico²; but we have no confirmation of this statement, all our specimens being either from British Honduras or the lowlands of Vera Paz. Hartweg travelled both in Mexico and Guatemala, and his specimen may have come from the latter country. In Guatemala *P. ulopos* occupies nearly the same area as *P. phaon*, and though the two are obviously allied, the former may readily be distinguished from the latter by the submarginal spots of the primaries being confined to the middle of the margin; those near the anal angle (which are large in the latter) are completely obliterated.

F. P. PROTESILAUS &c. group.

Papilio, Sect. xv.-xix., xxii., xxiii., Feld. Sp. Lep. pp. 12, 15, 55-59.

The inner margin of the secondaries is more or less folded in this group, but the fold in *P. epidaus* is very small and restricted to the proximal portion of the margin, and, moreover, does not appear to enclose a tuft of long hairs, which in the other sections is

situated close to the submedian nervure. This tuft is more or less developed in the other species, and differs in colour. The median nervure of the secondaries is much elongated, so as to form a tail, which is not spatulate, but slightly tapering to its rounded end.

The base of the foliate appendage of the fore tibia is placed a little beyond the middle of that joint.

The harpes of the species of this group vary considerably in structure; but there is a certain resemblance in those of the different sections as arranged below. Thus, in *P. penthesilaus* and *P. protesilaus* the lower edge of the harpe in each has a prominent horn-like process, but the projection above it terminates in a serrate edge in *P. penthesilaus* (Tab. LXVIII. fig. 7), and in a blunt point in *P. protesilaus* (fig. 6). The central longitudinal serrate-edged ridge is much more developed in the latter than in the former.

None of the other species placed in this group have the same arrangement. This will be best seen on comparing the figures.

All the species of this group are strictly Neotropical, several of them having a wide range in South America.

e. A distinct tuft of hair enclosed within the fold of the inner margin of the secondaries.

g'. Tuft of hairs in the fold long, black.

39. *Papilio protesilaus*. (Tab. LXVIII. fig. 6, right harpe.)

Papilio protesilaus, Linn. Mus. Ulr. p. 209¹; Syst. Nat. i. p. 752²; Clerck, Icones, t. 27. f. 2³; Cram. Pap. Ex. t. 202. ff. A, B⁴; Boisd. Sp. Gén. i. p. 262⁵; Feld. Sp. Lep. pp. 13, 57⁶; Auriv. Kongl. Sv. Vet.-Akad. Handl. Band 19, No. 5, p. 29⁷.

Protesilaus leilus, Swains. Zool. Ill., Ins. ser. 2, iii. t. 93⁸.

Papilio glaucolaus, Bates, Ent. Monthly Mag. i. p. 4⁹.

Alis cretaceo-albis; anticis ad basin viridescentibus, fasciis quinque nigris transversis a costa incipientibus, primoribus duabus ultra cellulam ductis, quarta abbreviata (interdum obsoleta), quinta per cellulæ finem, margine externo decrescente, fasciam latam trigonam semihyalinam includente, nigris; posticis margine externo nigro lunulas cretaceo-albas includente, iis venam medianam utrinque et ad angulum analem duplicatis interdum quoque ea inter venas radiales, lunulis glaucis ad angulum analem, ciliis inter venas, caudæ apice et margine suo interno, albis, macula subanali rubra extrorsum nigro marginata: subtus ut supra; posticis vittis duabus a costa per cellulam prope macula coccinea conjunctis, nigris, exteriore extrorsum rubro limbata.

Hab. PANAMA, Lion Hill (*M^cLeannan*⁹).—SOUTH AMERICA generally, from Colombia to Guiana and to Paraguay.

Taking Clerck's figure as typical of *P. protesilaus* of Linnæus, as suggested by Dr. Aurivillius⁷, this name becomes associated with the form of this *Papilio* in which

the lunules at the base of the tail are white and the outer margin but slightly serrated. As thus restricted, some variation is to be traced in individuals from various parts of its wide range, but we do not think it desirable to admit any further subdivision, or indeed to recognize the Panama individuals described by Mr. Bates as *Papilio glaucolaus*⁹. The grounds upon which the latter was separated are stated to be the greenish-white tint of the ground-colour of the wings both above and beneath, the narrower transparent space between the apical border of the primaries, and the straightness of the inner edge of the black outer border of the secondaries enclosing the pale lunules. With the large series now before us these characters can hardly be maintained as definite; the wings, it is true, have the faintest green tinge pervading them, but this is all.

We have not as yet traced *P. protesilaus* beyond the line of the Panama Railway. In the rest of our country, up to Southern Mexico, *P. penthesilaus* is the prevailing and only form.

40. ***Papilio penthesilaus*.** (Tab. LXVIII. fig. 7, right harpe.)

Papilio penthesilaus, Feld. Reise d. Nov., Lep. i. p. 52, t. 11. f. c¹; Butl. & Druce, P. Z. S. 1874, p. 365².

Papilio protesilaus, var. *b*, Gray, Cat. Lep. Ins. B. M. p. 34³.

Papilio protesilaus, Boisd. Lép. Guat. p. 6⁴.

Papilio macrosilaus, Boisd. MS.⁵; Gray (ut suprà); Boisd. Lép. Guat. p. 6⁶.

Le Flambé du Pérou, Daubenton, Pl. Enlum. t. 44. ff. 1, 2 (apud Boisd.)⁷.

Papilio archesilaus, Feld. Reise d. Nov., Lep. p. 51, t. 11. ff. *a*, *b*⁸.

P. protesilao similis, sed anticis linea submarginali nigra angustiore, plaga hyalina latiore; posticis margine externo profunde serrato, ciliis omnibus usque ad angulum apicalem albis.

♀ mari similis.

Hab. MEXICO (*Sallé*¹), Atoyac (*H. H. Smith*), Oaxaca (*Fenochio*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*), R. Sarstoon (*Blancaneaux*); GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*), Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*), Cahabon (*Champion*); HONDURAS (*Dyson, mus. Brit.*³); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*²); PANAMA, Chiriqui, Calobre (*Arcé*), Panama (*M'Leannan*).—COLOMBIA⁸; PERU⁷.

We use this name for this form of *P. protesilaus* the specific distinctness of which seems to be assured by the slight difference in the structure of the harpes of the males. It was applied by Felder to a specimen obtained by Sallé in Southern Mexico, probably from the neighbourhood of Cordova, where he so long resided. We have an example from Atoyac, in the same district, which agrees closely with Felder's description and figure, so that our determination of this species can hardly be questioned. Making some allowance for individual variation, we find this form prevalent throughout our region and extending beyond it into Colombia. Except at Panama, it is the only

form found in Central America; there, however, it comes into contact with two other forms, *P. protesilaus* and *P. telesilaus*, both southern types with a very wide range in South America. It will be observed that we unite the Colombian *P. archesilaus* with our Central-American insect. From specimens before us it seems included within the limits of the variation of the more northern form.

Regarding *P. macrosilaus* (for a long time only a MS. name in Boisduval's collection) a few words seem necessary. Gray first mentioned it in a published work as a variety of *P. protesilaus*, associating it with a Honduras specimen, but with inadequate characters. Bates ascribed it to the form with fawn-coloured lunules subsequently described as *P. telesilaus*. Boisduval himself says that Daubenton's figure in the 'Planches Enluminées' is a good representation of his *P. macrosilaus*, and this certainly agrees with the Colombian insect; he adds that his own specimen came from Costa Rica. Under these circumstances *P. macrosilaus* has some claim to priority over *P. penthesilaus*; but the uncertainty of its application makes it desirable that *P. penthesilaus*, a name fully characterized, well figured, and located, should be employed.

We met with *P. penthesilaus* in some numbers in the low-lying forest-region of Northern Vera Paz; here it frequented the sandy banks of the forest streams.

Females of all these forms are exceedingly rare. We have one, however, taken with its male at Calobre in the State of Panama, from which it appears that there is no material difference in the coloration of the sexes; the female, however, has a slightly ochraceous tint pervading the wings.

41. *Papilio telesilaus*.

Papilio telesilaus, Feld. Sp. Lep. pp. 13, 57¹.

Princeps heroicus protesilaus, Hübn. Samml. ex. Schmett. i. t. 109².

Papilio protesilaus, var. *macrosilaus*, Bates, P. Z. S. 1863, p. 241³.

P. protesilao quoque similis, sed posticis lunulis ad caudæ basin et ad angulum analem cervinis.

Hab. PANAMA, Lion Hill (*M^cLeannan*³).—SOUTH AMERICA, from Colombia¹ to the Amazons valley and South-eastern Brazil.

This is a common form in South America, extending over a large portion of the hotter regions. It enters our fauna as far as the line of the Panama Railway, and our examples from there agree as to size with those of Colombia, and are rather larger than those found in more southern regions. Felder, in his description, fully entered into the local variations of this form.

h'. Tuft of hairs in the fold shorter.

a''. Tuft of hairs pure white.

42. *Papilio orabilis*. (Tab. LXVII. figg. 14 ♂; 15, right harpe.)

Papilio orabilis, Butler, Cist. Ent. i. p. 84¹; Lep. Ex. p. 163, t. 58. f. 1²; Butler & Druce, P. Z. S. 1874, p. 365³.

Alis sulphureo-albis; anticis apice ultra cellulam, margine externo late, fascia lata transversa per cellulæ medium fusco-nigris, maculis tribus ultra cellulam albidis; posticis area anali et margine externo late fusco-nigris, fasciola ad marginem analem bilunulata coccinea, macula anali triangulari ramum medianum primum bisecta albida, lunulis submarginalibus cæruleo-albidis: subtus fere ut supra, area apicali interna ad angulum analem producta fusco-albida; posticis fascia a costæ medio ad medium marginis externi fusco-nigricante, margine interno ejusdem coloris: abdomine fusco-albido utrinque bistriato.

Hab. GUATEMALA (*Sarg, in mus. Berol.*); COSTA RICA (*Van Patten*^{1 2}); PANAMA, Chiriqui (*Arcé*), Bugaba (*Champion*).—COLOMBIA.

This beautiful species is most nearly allied to *P. hippodamas* of Felder, from Colombia, but may readily be distinguished by its paler sulphur colour, its narrower darker margin, and by the band which crosses the middle of the cell terminating abruptly instead of being carried forward to the middle of the outer margin; the secondaries beneath have a band which runs from the middle of the costa and joins the middle of the dark outer border. In the allied species this band is merged in the border itself. The first specimens received of *P. orabilis* were included in Van Patten's large Costa-Rican collection described by Messrs. Butler and Druce³. It has since been found in Chiriqui; there is also a specimen in the Berlin Museum from Mr. Sarg, marked as having come from Guatemala. We have no other evidence of its occurring nearly so far north. Recently Mr. Druce has received a specimen from Colombia, probably from the valley of the Cauca*.

43. *Papilio lacandones*. (Tab. LXVII. figg. 11, 12 ♂; 13, right harpe.)

Papilio lacandones, Bates, Ent. Monthly Mag. i. p. 4¹.

Alis pallide ochraceis; anticis margine costali (fere totam cellulam includente) et margine externo brunneis; maculis tribus costalibus et lineolis quatuor apicalibus, margine externo parallelibus, ochraceis; posticis margine externo et interno anguste brunneis, lunulis submarginalibus ab apice usque ad venam medianam flavis, lunulis alteris cærulescentibus ad angulum analem, maculis duabus ad angulum ejusdem coccineis: subtus ut supra sed pallidioribus; posticis maculis sex rubris margine externo brunneo inclusis.

Hab. GUATEMALA, forests of Vera Paz, Choctum (*F. D. G. & O. S.*¹), Cubilguitz (*Champion*); PANAMA, Veraguas (*Arcé*).—ECUADOR; PERU.

The first specimens of this species were obtained by us during a visit to the low-lying forest-region of Northern Vera Paz, at an elevation of about 1200 feet above the sea,

* Messrs. Butler and Druce include *P. servillei* in the list of Van Patten's Costa-Rican butterflies³, but its occurrence in that country requires confirmation.

in February 1862; Mr. Champion subsequently found it in the same district. Mr. Bates's description was drawn up from our specimens, and he compared it with *Papilio leucaspis* of Godt. It is, however, with *P. dioxippus* of Hewitson that its relationship lies; from this it differs in having a narrower margin, a more acute apical angle to the secondaries, and in wanting a patch of purplish white situated inside the yellow lunules on either side of the median nervure beneath.

The range of *P. lacandones* is somewhat remarkable, for specimens we possess from Cururai in Ecuador and Cosnipata in Peru seem certainly referable to the Guatemalan form and not to *P. dioxippus*, the range of which appears to be restricted to Colombia.

44. **Papilio salvini.** (Tab. LXVIII. figg. 3 ♂; 4, right harpe.)

Papilio salvini, Bates, Ent. Monthly Mag. i. p. 4¹; Hew. Ex. Butt. iii., Papilio, t. 8. f. 23²; Boisd.

Lép. Guat. p. 5³.

Papilio eacus, Boisd. MS.⁴

Alis pallide viridi-cretaceo-albis; anticis costa, area apicali, margine externo, linea per cellulam, altera per finem ejus ad marginem externum extensa nigris; posticis margine externo nigro, ad caudæ basin lunulis duabus glaucis includente, altera in lobulo anali nigro, macula subanali introrsum rubra extrorsum nigra: subtus sericeo-albis; anticis area apicali usque ad apicem hujus coloris, lineis et marginibus ut in pagina superiore sed angustioribus, linea per cellulæ finem haud marginem externum attingente; posticis ut supra, linea recta a costa per cellulæ finem, altera conjuncta margine interno parallela.

Hab. MEXICO, Yucatan (*fide* Boisd.³); BRITISH HONDURAS, R. Sarstoon (*Blanca-neaux*); GUATEMALA, forests of Northern Vera Paz, Choctum (*F. D. G. & O. S.*), Cubilguitz (*Champion*), Chisoy and Polochic valley (*F. D. G. & O. S.*), Chacoj (*Champion*).

The specimens described by Mr. Bates¹ were obtained by us during our expedition to the low-lying forests of Vera Paz; but an example said to have been from Yucatan had previously been in Boisduval's collection³. We have one from the southern frontier of British Honduras, and it also occurs in the lower part of the Polochic valley. *P. salvini* has no near allies that we are acquainted with; it comes, perhaps, next to *P. bellerophon* of Southern Brazil, but the differences on comparison are very obvious.

♂". Tuft of hairs brown.

45. **Papilio calliste.** (Tab. LXVIII. figg. 1, 2 ♂.)

Papilio calliste, Bates, Ent. Monthly Mag. i. p. 3¹; Boisd. Lép. Guat. p. 5²; Butler & Druce, P. Z. S. 1874, p. 365³.

Papilio l'orzæ, Boisd. Insect. Agric. 1869, p. 103⁴.

Alis flavis; anticis margine costali cellulam includente et margine externo brunneo-nigrescentibus, lineolis tribus per cellulam, quarta ultra eam angulum analem versus extensa, quinta maculosa ad angulum apicalem ducta flavis; posticis margine interno anguste, externo late nigricanti-brunneis, lunulis quinque submarginalibus flavis, iis venam medianam utrinque duplicatis; maculis duabus subanalibus rubris, caudæ apice et margine interno flavis: subtus ut supra sed omnino pallidioribus, lineola quarta usque ad BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1890.

angulum analem producta; posticis dimidio distali marginis externi albidè, lunulis flavis et lineolis nigris transversis notato; lineola irregulari rubra utrinque nigro marginata ad limbum internum marginis externi.

♀ nobis ignota.

Hab. MEXICO, Atoyac (*H. H. Smith*); BRITISH HONDURAS, Cayo (*O. S.*); GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*¹), Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*), Purula, Coban, Chiacam, Cahabon (*Champion*); COSTA RICA (*Van Patten*³), Cache (*Rogers*).

We first discovered this species during an expedition to the low forests of Northern Vera Paz, where it occurs in some numbers on the sandy banks of the forest streams. We subsequently met with it on the upper part of the Belize river, and our collectors secured a series of specimens in the valley of the Polochic. Mr. Champion also found it in these and other places and as high as Purula and Coban, that is to say, at an elevation of between 4000 and 5000 feet above the sea. It appears to be absent from the forest-region bordering on the Pacific, and we have no record of its occurrence elsewhere in Central America till we reach Costa Rica.

46. *Papilio marchandi*. (Tab. LXVIII. fig. 5, right harpe.)

Papilio marchandii, Boisd. Sp. Gén. i. p. 350¹; Lép. Guat. p. 5²; Lucas, Ann. Soc. Ent. Fr. 1869, p. 532³; Strecker, Lep. Rhop. Het. p. 25, t. 4. f. 2⁴; Butler & Druce, P. Z. S. 1874, p. 365⁵.

Alis aurantiis; anticis margine costali et externo nigricantibus, illo limbo suo interno ad cellulæ finem valde sinuoso, maculis tribus costalibus parvis, quarta ultra cellulam trifida et serie submarginali aurantiis; posticis margine interno anguste externo late nigricantibus, maculis submarginalibus, caudæ apice et margine suo interno aurantiis, lunulis tribus glaucescentibus, una ad angulum analem, reliquis caudæ utrinque basi: subtus multo pallidioribus; anticis maculis omnibus aurantiis majoribus et confluentibus; posticis medialiter sordide ochraceis castaneo circumcinctis, basi flava linea nigra limbata, margine externo nigro, maculis paginae superioris majoribus, lineola altera submarginali ad angulum apicalem aurantia, corpore nigro flavo striato.

♀ mari similis.

Hab. MEXICO^{1 4}, Cordova, Orizaba (*Boucard*³), Atoyac (*H. H. Smith*); BRITISH HONDURAS, R. Hondo, R. Sarstoon (*Blancaneaux*); GUATEMALA³, forests of Northern Vera Paz (*F. D. G. & O. S.*), Cubilguitz (*Champion*), Polochic valley (*F. D. G. & O. S.*), Sabo, Chacoj, Panzos (*Champion*), Motagua valley (*F. D. G. & O. S.*); COSTA RICA⁴ (*Van Patten*⁵); PANAMA⁴, Chiriqui (*Trötsch*), Veraguas, Panama (*Arcé*).—COLOMBIA.

Boisduval first described this species from a Mexican specimen belonging to M. Marchand, of Chartres. It has since been found on the slope of the mountains of Vera Cruz, chiefly in the neighbourhood of Cordova; it is also abundant on the eastern side of Guatemala, up to an elevation of about 2500 feet. Its most southern limit is Colombia, where it is found at Frontino in the Cauca valley near Muzo, and near San Buenaventura on the Pacific coast. It is remotely related to *P. thyastes* of Drury.

c''. Tuft of hairs black.

47. *Papilio agesilaus*.

Papilio agesilaus, Boisd. in Guér. & Perch. Gen. Ins., Lep. t. 1¹; Sp. Gén. i. p. 263².

Papilio conon, Hew. Trans. Ent. Soc. new ser. ii. p. 246, t. 22. f. 3³.

Alis cretaceo-albis ad basin viridescentibus; anticis costa angustissime, margine externo ad angulum analem decrescente nigricantibus, hoc fascia semihyalina includente, lineis quinque transversis nigricantibus, secunda longissima, quinta ad cellulæ finem; posticis margine externo nigro lunulis quinque includente cretaceis, iis vena mediana utrinque maximis, ciliis inter venas ad marginis externi medium, caudæ apice, et margine suo interno quoque cretaceis, plaga bifida subanali rubra extrorsum nigro marginata, lineaque obsoleta supra ramum medianum primum: subtus anticis ut supra sed pallidioribus; posticis margine externo lunulis albidis et nigris fere ut in pagina superiore notatis; lineis duabus a costa per cellulam transeunte ultra eam conjunctis angulum acutum formantibus, interiore apud costam extrorsum exteriore omnino introrsum rubro limbatis.

Hab. PANAMA, David (*Champion*), Calobre, Panama (*Arcé*).—COLOMBIA^{1 2 3}; VENEZUELA.

The original description and figure of this species were based upon a specimen obtained on the borders of the Magdalena river in Colombia¹, and with Hewitson's figure of *P. conon*³ before us we have no doubt that the latter is simply a synonym of *P. agesilaus*. Further in the interior, in the neighbourhood of Bogota, this species becomes larger, the markings (especially of the under surface) are more strongly impressed. Our Central-American specimens are somewhat intermediate in character both as to size and to markings; but as there is no essential difference between any of these forms, we make no attempt to separate them. Boisduval, in his 'Species Général'², by referring to Mexican and Colombian specimens and to Esper's figure of *P. protesilaus*, evidently considered that the three species we now know as *P. agesilaus*, *P. neosilaus*, and *P. autosilaus* were all referable to one under the first-mentioned name. Esper, under the name *P. protesilaus*, clearly figures the form of the Amazons valley described by Bates as *P. autosilaus*.

P. agesilaus has a limited range in our country, and we have not traced it beyond David in Chiriqui, where Mr. Champion procured many specimens.

48. *Papilio neosilaus*. (Tab. LXVIII. figg. 8, 9 ♂.)

Papilio neosilaus, Hopff. Stett. ent. Zeit. 1866, p. 26¹.

P. agesilao similis, sed posticis vitta supra ramum medianum primum latiore per cellulam usque ad costam extendente: subtus posticis vitta exteriore transversa abbreviata haud interiore ultra cellulam conjuncta.

Hab. MEXICO, Oaxaca (*Deppe*¹, *Fenochio*), Atoyac (*Schumann*); BRITISH HONDURAS, Cayo (*F. D. G. & O. S.*), R. Sarstoon (*Blancaneaux*); GUATEMALA, Choctum, Polochic valley (*F. D. G. & O. S.*), Cubilguitz, Cahabon (*Champion*); HONDURAS (*mus. Staud.*), San Pedro (*G. M. Whitely*).

This is the Mexican and Guatemalan form of *P. agesilaus*, in some respects resem-

bling the Amazonian *P. autosilaus* rather than *P. agesilaus*. In *P. autosilaus*, however, the semihyaline submarginal band of the primaries is very narrow and the outer of the two transverse bands of the secondaries beneath runs parallel to the inner band and then curves round and meets it near the subanal red spot. Hopffer was the first to distinguish this insect, basing his description upon specimens obtained by Deppe in the Mexican State of Oaxaca¹. In Guatemala *P. neosilaus* is a very common species in the low-lying heavily forested country on the eastern side of the main mountain-range.

Dr. Staudinger possesses specimens from the Republic of Honduras, but none are recorded from either Nicaragua or Costa Rica.

49. ***Papilio philolaus*.** (Tab. LXVIII. fig. 12, right harpe.)

Papilio philolaus, Boisd. Sp. Gén. i. p. 256¹; Mén. Cat. Mus. Petr., Lep. ii. p. 110, t. 7. f. 1²; Staud. Ex. Tagf. p. 18, t. 12³.

Alis nigris, fascia communi et lunulis submarginalibus viridescenti-albis; anticis basi et lineis sex transversis angustis ejusdem coloris, prima ad marginem internum producta, tertia et quarta fascia communi conjunctis, quinta et sexta ultra cellulam; posticis linea nigra per fasciam communem; maculis duabus subanalibus coccineis; disco squamis sparsis albicantibus notato: subtus ut supra sed pallidioribus æneo micantibus; posticis linea per fasciam communem nigra introrsum rubra.

♀ mari similis.

Forma altera: alis omnino nigris maculis subanalibus coccineis et squamis discalibus tantum notatis: subtus pallidioribus, linea transversa coccinea et maculis subanalibus obviis.

Hab. MEXICO^{1 3}, Tampico (*Richardson*), Cordova (*Höge, Rümeli*), Atoyac (*H. H. Smith*), San Lorenzo near Cordova (*Trujillo*), Manzanillo (*Lloyd*), Acapulco (*A. H. Markham*), Sierra Madre de Tepic (*Richardson*); BRITISH HONDURAS, Corosal (*Roe*), Cayo (*F. D. G. & O. S.*); GUATEMALA³, forests of Northern Vera Paz, Choctum, Polochic valley, Central valleys (*F. D. G. & O. S.*), Tucuru and Chacoj (*Champion*); HONDURAS (*mus. Staudinger*), San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*).

P. philolaus was described by Boisduval from specimens from Mexico, where it enjoys a wide range in the low-lying lands of both sides of the mountain-range from Tampico on the one side to the territory of Tepic on the other and southwards. Some variation is observable in a series of specimens; this especially affects the width of the band common to both wings, but the variations do not seem associated with any special localities.

The species most nearly allied to *P. philolaus* is *P. zonaria* of Butler, from the island of San Domingo; this has narrower, more falcate wings, and the submarginal spots are rounder in form and not distinct lunules as in the present species, besides other differences.

Like so many of its congeners, *P. philolaus* frequents the sandy banks of the forest streams, sometimes occurring, as in the valley of the Polochic, in very great profusion.

50. **Papilio xanticles.** (Tab. LXVIII. figg. 10 ♀, 11 ♂.)

Papilio xanticles, Bates, P. Z. S. 1863, p. 241, t. 29. f. 3¹; Godm. & Salv. Trans. Ent. Soc. 1880, p. 126².

Papilio plæsiolaus, Staud. Ex. Tagf. p. 17³.

P. philolao similis, sed fascia communi multo latiore et cum lunulis submarginalibus et lineolis transversis ochraceis, lineolis quinta et sexta ultra cellulam fascia communi conjunctis: subtus anticis fascia submarginali interiore pallida notatis.

♀ fusco-nigricantibus, lunulis submarginalibus ochraceis et maculis subanalibus coccineis tantum notatis: subtus lineola transversa coccinea quoque obvia.

Hab. PANAMA, Lion Hill (*M^cLeannan*¹).—COLOMBIA^{2 3}.

This species has a very limited range, occurring, so far as we yet know, only on the Panama Railway and at the foot of the Sierra Nevada of Northern Colombia, where Mr. F. Simons found it at Manaure¹. Its nearest ally is *P. arcesilaus* of Lucas, from Venezuela, from which *P. anaxilaus* of Felder, from Bogota, is scarcely to be distinguished. *P. xanticles* is a larger insect, with the light markings of the wings of a much deeper ochreous yellow; the margins especially of the secondaries are wider.

Though allied to *P. arcesilaus*, it obviously belongs to the same section as *P. philolao*, with which we have compared it above. It may at once be distinguished by the wider ochraceous markings which occupy a larger portion of the wings.

The female we have described is probably not of the normal colour of that sex, but one of the dark forms such as occur occasionally in *P. philolao*. The normal female will probably be found to resemble the male in coloration.

f. No tuft of hairs within the fold of the inner margin of the secondaries.

51. **Papilio epidaus.** (Tab. LXVIII. fig. 15, right harpe.)

Papilio epidaus, Doubl. Gen. Diurn. Lep. p. 15, t. 3. f. 1¹; Mén. Cat. Mus. Petr., Lep. p. 3²; Gray, List Lep. Ins. B. M. p. 46 (1856)³; Butl. & Druce, P. Z. S. 1874, p. 365⁴.

Alis cretaceo-albis; anticis cellula et area apicali semihyalinis, lineis quinque transversis nigris, primoribus duabus, in posticis usque ad maculam subanalem coccineam extensis, margine interno plus minusve parallelibus, tertia per cellulam ducta, quarta obsoleta, quinta per cellulæ finem fere ad angulum analem extendente, margine externo nigro; posticis margine externo nigro, lunulis albis includente, iis ad medium marginis et ad angulum analem duplicatis, ea infra venam medianam singula, cauda nigra argenteo utrinque limbata: subtus ut supra, linea transversa posticarum exteriori extrorsum coccineo limbata.

Hab. MEXICO¹, San Blas, Sierra Madre de Tepic (*Richardson*), Omealca near Orizaba (*Trujillo*), Cordova (*Rümeli*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Cayo (*F. D. G. & O. S.*); GUATEMALA, Central valleys, San Gerónimo (*F. D. G. & O. S.*, *Champion*), Pacific coast (*F. D. G. & O. S.*); HONDURAS^{1 3}; NICARAGUA^{2 3}, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴).

In general appearance this butterfly much resembles *P. agesilaus* and *P. protesilaus*,

the wings being of a similar chalky white crossed by narrow black bands; but the resemblance is only superficial, for the arrangement of the bands is different in the two forms, and *P. epidaus* alone has a black median band crossing the secondaries in the direction of the anal angle; the silvery edging of the tail, too, is also a diagnostic character. *P. epidaus*, though also found in the eastern lowlands of Mexico and Guatemala, is the only one of these white species which occurs in North-western Mexico and in the lowlands of Guatemala bordering on the Pacific Ocean.

Papilio epidaus was figured, without description, in Doubleday and Hewitson's 'Genera of Diurnal Lepidoptera' from Mexican and Honduras specimens. Its southern range extends to Costa Rica, for though Boisduval says it occurs in Colombia we have no confirmation of this statement, and none of the collectors in the State of Panama have met with it.

52. *Papilio fenochionis*. (Tab. LXVIII. figg. 13, 14 ♂.)

Papilio fenochionis, Salv. & Godm. Ann. & Mag. N. H. ser. 4, ii. p. 150¹.

P. epidaus similis, sed anticis magis hyalinis; posticis dimidio distali (lunulis submarginalibus et maculis duabus subanalibus coccineis exceptis) nigris; linea mediana haud abbreviata, dimidio distali nigra conjuncta: subtus posticis lineola mediana coccinea utrinque nigro limbata.

Hab. MEXICO, Oaxaca (*Fenochio*², Höge).

This is a form of *P. epidaus* apparently confined to the State of Oaxaca on the western side only. Further to the northward in the Sierra Madre of Tepic the true *P. epidaus* is found, and also on the Pacific coast of Guatemala to the southward. Its characters are fairly definite, the great extent of the black on the distal portion of the secondaries and the submarginal lunules are in a single, not a double, row, though indications of the inner row can be traced in some specimens.

G. P. THOAS group.

Papilio, Sect. xlii., Feld. Sp. Lep. pp. 21, 69.

The secondaries have no fold along their inner margin, which instead of being convex when fully spread is distinctly concave. The foliate appendage to the front tibia is attached nearer the proximal than the distal end of that joint. The harpes are of simple construction (see Tab. LXIX. fig. 4); the lower edge is produced to a point and is slightly serrate beneath. The scaphium is strongly chitinized, and has a pair of well-developed hooks, which are directed outwards and are upturned.

The sexes are alike in coloration.

Though *P. thoas* has a wide range in North America, the group to which it belongs must, we think, be considered a Neotropical one, as several allied species are found only in southern countries.

53. **Papilio thoas.** (Tab. LXIX. fig. 4, right harpe.)

Papilio thoas, Linn. Mant. Plant. p. 536¹; Drury, Ill. Ex. Ent. i. p. 44, t. 22. ff. 1, 2²; Cram. Pap.

Ex. t. 167, A, B³; Boisd. Sp. Gén. i. p. 355⁴; Butl. & Druce, P. Z. S. 1874, p. 365⁵.

Princeps heroicus thoas, Hübn. Samml. ex. Schmett. i. t. 114⁶.

Papilio cresphontes, Cram. Pap. Ex. t. 165 A and 166 B⁷; Mén. Cat. Mus. Petr., Supp. p. 68⁸;

Strecker, Cat. Butt. N. A. p. 69⁹; Feld. Sp. Lep. pp. 22 & 69¹⁰.

Heracledes cresphontes, Scudder, Butt. East. U. S. ii. p. 1334¹¹.

Alis fusco-nigricantibus; anticis fascia extracellulari a margine interno ad angulum apicalem interdum venis nigris divisa ad apicem plus minusve maculosa ochracea, macula tertia ab apice elongata, parte proxima interdum macula elliptica fundi coloris fere oblitterata, maculis tribus ad cellulæ finem parvis subcostalibus ochraceis, lunulis quatuor coloris ejusdem ab angulo anali ad fasciæ medium approximantibus; posticis fascia subbasali, lunulis sex submarginalibus, ciliis inter venas et caudæ spatula interne ochraceis, lunula subanali rubra squamis quibusdam juxta eam glaucis: subtus colore ochraceo paginæ superioris pallidiore et maculis majoribus, cellula fere omnino ochracea lineolis indistinctis fuscis radiolata, maculis octo submarginalibus ochraceis; posticis fere omnino ochraceis, fascia discali extrorsum profunde serrata et linea submarginali tantum nigris, illa lunulis septem glaucis includente, maculis duabus ultra cellulam et lunula subanali rubris: abdomine ochraceo medialiter supra nigricante.

♀ mari similis, sed major, fasciis et maculis omnibus ochraceis aut angustioribus aut minoribus.

Hab. EASTERN UNITED STATES southward of latitude 42°, and westward to the edge of the plains, Florida and Texas.—MEXICO⁸, Alamos, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Tampico (*Richardson*), Cordova (*Höge, Rümeli*), Omealca near Orizaba (*M. Trujillo*), Orizaba (*F. D. G., H. J. Elwes*), Ventanas in Durango (*Forrer*), Acaguitzotla, Dos Arroyos, Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, R. Hondo (*Blancaneaux*); GUATEMALA, forests of Northern Vera Paz (*F. D. G. & O. S.*), Chiacam, Cahabon, Panima, Chacoj (*Champion*), Polochic valley, Yzabal, Central valleys, San Gerónimo, Motagua valley, Pacific coast (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁵); PANAMA, Bugaba, David (*Champion*), Chiriqui (*Arcé*), Lion Hill (*M. Leannan*).—SOUTH AMERICA generally from Colombia and Guiana to the Argentine Republic.

Many entomologists consider that the names *P. thoas* and *P. cresphontes* apply to two distinct species, the former having a wide range in South America, the latter distributed over a large portion of North and Central America. So far as we can find the points of distinction have never been satisfactorily laid down, though Dr. Felder strongly urges their acceptance, and so far as we can see from the large series before us no tangible points of difference exist. Variation of course is present, and to a considerable extent, but it is not localized in any marked degree. Specimens from Southern Brazil are, as a rule, remarkably large, and have the primaries more decidedly falcate; still further south, in the Argentine Republic, the smaller form reappears.

P. thoas is one of the commonest species of *Papilio* in America. In our country it is to be found with the vast numbers of butterflies which frequent the damp sandy banks of the rivers; here it may be seen on the outskirts of the multitude of *Callidryas* with quivering wings ready to take flight at the approach of danger.

A full account of the development of this insect will be found in Mr. Scudder's work quoted above.

54. *Papilio thrason*.

Papilio thrason, Feld. Reise d. Nov., Lep. p. 74¹.

Papilio pæon, Snell. v. Vollen. Tijdschr. voor Ent. iii. p. 86² (nec Roger et Boisduval).

P. thoanti similis, sed supra fascia posticarum a margine externo magis remota, caudæ basi latiore et introrsum fere ad apicem ochraceo limbata: subtus posticis fascia discali nigra prope cellulam rubro marginata, lunulis ad costam et marginem internum tantum medialiter glaucis, reliquis quinque ochraceis, lunula inverta ad cellulæ finem nigra, squamis ochraceis includente et introrsum rubro marginata.

Hab. COSTA RICA (*Van Patten*).—COLOMBIA^{1 2}; VENEZUELA¹.

The name of this species is omitted from Messrs. Butler and Druce's list of Van Patten's Costa-Rican collection. We find, however, that a specimen of it exists therein, agreeing accurately with others from Colombia including a typical one sent us by Dr. Felder. Though we have compared it with *P. thoas*, to which it is remotely allied, its relationship is much closer to *P. pæon* of Western Peru and Chili and *P. cresphontinus** of San Domingo, from both of which it, however, presents obvious differences.

H. P. EPIDAUROS (vel *P. androgeus*) group.

Papilio, Sect. xlv., Feld. Sp. Lep. pp. 22, 70.

As in *P. thoas* there is no definite fold near the inner margin of the secondaries, and the margin itself is concave. The foliate appendage of the front tibia is attached rather nearer the proximal than the distal end of that joint. The harpes are ovate and have a prolonged spine on the lower edge; the upper part of the outer edge has a strongly serrate projection (see Tab. LXIX. fig. 3). The scaphium is not so definite as in *P. thoas*. These parts are very similar in *P. epidauros* and *P. lycophron*, but those of *P. erostratus* much more closely resemble those of *P. pandion* belonging to a section or group in which the sexes are similarly coloured. In all members of this group of species the sexes differ widely in colour. The secondaries have the median nervure produced beyond the margin, but this projection is not spread to form a spatule.

This is another strictly Neotropical group, and is unrepresented in North America.

55. *Papilio epidauros*, sp. n. (Tab. LXIX. figg. 1, 2 ♀; 3, right harpe.)

Papilio polycæon, var. *b*, Gray, Cat. Lep. Ins. Brit. Mus. p. 36¹.

Papilio polycæon, Butl. & Druce, P. Z. S. 1874, p. 365².

* Gray and Felder use the name *P. daphnis* of Martyn for this species (Sp. Lep. p. 21); but this is an error, as *P. daphnis* of Martyn is an *Argynnis* figured in plates iii. & iv. of his work together with this *Papilio*, which is there called *P. cresphontinus*, but said to be from Amboyna! *P. cresphontinus* antedates *P. aristodemus* of Esper by four years.

Alis fusco-nigricantibus; fascia lata communi a margine interno posticarum ad anticarum apicem extendente, hujus cellulæ partem occupante ochracea in anticis, præcipue ad apicem, venas nigras divisa; posticis lunulis septem submarginalibus, ea ad angulum apicalem pallide ochracea, ea ad angulum analem rubra, reliquis obscure ochraceis; maculis alteris obscuris discalibus ochraceis, ea ad marginem internum glauca: subtus ochraceis, anticis apice et margine externo fuscis, hoc lunulis sex includente, cellula fusco longitudinaliter striata; posticis lunulis septem discalibus nigris lunulis glaucis includentibus introrsum plus minusve rubido marginatis, margine externo et cauda nigris, ciliis inter venas ochraceis, lunula anali rubida.

♀ alis viridi-nigricantibus; anticis fere immaculatis squamis quibusdam et lunulis ad angulum analem evanescentibus ochraceis; posticis fascia discali, cellulæ finem vix occupante, ad marginem internum decrescente glauco-virescente, serie duplici lunularum submarginalium paulo saturatioribus, lunula anali rubida: subtus fuscescentibus; anticis squamis ultra cellulam et lunulis submarginalibus obscure ochraceis; posticis ultra cellulam nigricantibus, lunulis submarginalibus ochraceis (ea ad angulum analem excepta rubida), lunulis alteris interioribus squamis sparsis compositis glaucescentibus, serie tertia lunularum discali rubida, ciliis inter venas angustissime albis.

Hab. MEXICO, Ciudad, Ventanas in Durango (*Forrer*), Cordova (*Rümeli*), San Lorenzo near Cordova (*M. Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA ¹, forests of Northern Vera Paz, Yzabal, Polochic valley (*F. D. G. & O. S.*), Chacoj and Panzos (*Champion*), Pacific coast (*F. D. G. & O. S.*), El Reposo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*); PANAMA, Bugaba (*Champion*), Calobre, Veraguas (*Arcé*), Lion Hill (*M. Leannan*).—SAN DOMINGO.

It has of late been considered that there is only one species of *Papilio* of this form ranging over the greater portion of Tropical America. Judging from the males alone this would appear to be the case, but when the females are also examined it is found that several races exist which are localized, and are, as a rule, not difficult to recognize. The males and these females received several names from the older authors, all of which, however, apply to South-American forms, and not one of them to that of our country, which has a female distinct from any of the rest, and hence the necessity for an additional name. Unfortunately our series from Guiana is not sufficiently good to enable us to decide which of the older names is applicable to that form, but it must be either *P. androgeus* or *P. polycaon* or *P. piranthus*.

The South-Brazilian form must certainly pass under the name of *P. laodocus* of Fabricius, but the Colombian and Amazonian forms are probably unnamed.

In Mexico and Central America only one form prevails; the females from the Mexican State of Durango and from Panama differ but very slightly from one another. So far as we know there is no trace of any dimorphism in these females, but in the Amazons valley and Guiana it would appear from Cramer's figures that two forms at least are found. This, too, is Mr. Bates's view. Both in Mexico and Guatemala *P. epidaureus* occurs on both sides of the mountain-range. The females appear to be everywhere very scarce, or at least difficult to find.

56. *Papilio pallas*. (Tab. LXIX. figg. 5, 6 ♀.)

Papilio pallas, Doubl. List Lep. Ins. B. M. p. 53 (1844) (descr. nulla) ¹.

BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1890.

Papilio æbalus, Gray, Cat. Lep. Ins. B. M. p. 39, t. 6. f. 1²; Gray, List Lep. Ins. B. M. p. 53 (1856)³.

Papilio lycophron, Butl. & Druce, P. Z. S. 1874, p. 365⁴.

Alis fuliginoso-nigris; fascia communi lata ochracea ab apice anticarum ad marginem posticarum internum transeunte, hujus cellulam occupante venis ad apicem divisa et extrorsum valde sinuata; anticis maculis tribus costalibus ad cellulæ finem quoque ochraceis et lunulis submarginalibus cum ciliis inter venas ejusdem coloris; posticis maculis sex submarginalibus, introrsum rotundatis, extrorsum furcatis, cum ciliis inter venas ochraceis, lunula subanali cærulea, altera extrorsum et macula introrsum rubidis: subtus anticis ut supra sed fascia et maculis omnibus majoribus, cellula longitudinaliter ochraceo striata; posticis fascia transversa nigra, lunulis septem rubidis notata, lunulis alteris ultra eas glaucescentibus, lunula anali rubida sicut in pagina superiore: corpore ochraceo, abdomine supra medialiter nigro.

♀ alis fuliginosis; anticis dimidio distali pallidior, ciliis inter venas et maculis juxta eas ochraceis; posticis lunulis submarginalibus sex ochraceis, alteris interioribus cærulescentibus maculisque introrsum in serie tertia rubidis: subtus fere ut supra; anticis fascia indistincte transversa ultra cellulam; posticis maculis rubidis majoribus.

Hab. MEXICO^{1 2 3}; Tampico (*Richardson*), Coatepec (*Schaus*), Atoyac (*H. H. Smith*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Chacoj, El Reposo (*Champion*); HONDURAS (*mus. Staud.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴).

This Central-American species has long passed under the name of *P. æbalus* of Boisduval, which was given to a female specimen from an unknown locality. Mons. Charles Oberthür has kindly lent us the type of *P. æbalus*, and we find it agrees with an example in our collection, the origin of which is also unknown, and also with one from Dr. Staudinger which came from Santa Catarina in S.E. Brazil. The latter is accompanied by a male which has a very close general resemblance to *P. lycophron*; but the primaries are shorter, the submarginal lunules of the secondaries are wider, and the transverse dark band in consequence narrower. Should, however, this form be found to be inseparable from *P. lycophron*, it will follow that that species has two forms of female—one like *P. pirithous*, as figured by Lucas, the other like *P. æbalus*.

From *P. lycophron* the Central-American form differs in having the apical portion of the common band more distinctly divided by the nervures, each segment being rounded externally, the outer border has, therefore, a very serrated internal edge instead of a comparatively straight one.

Males vary as to the width of the external border of the primaries and in that of the transverse band of the secondaries, but every gradation is shown in Honduras specimens, so that no specific differences can be based upon this feature. Females also differ considerably, but we have not nearly a sufficient series to say positively whether these differences are in any way localized. Mr. Schaus's female specimen from Coatepec has the innermost of the three submarginal rows of spots on the secondaries distinctly shown, whereas in a Honduras specimen the second row is more strongly developed, but these characters are not sufficiently tangible to separate these forms until at least a larger series is before us.

57. **Papilio ornythion.** (Tab. LXIX. figg. 7, 8 ♂.)*Papilio ornythion*, Boisd. Sp. Gén. i. p. 354¹.

Alis fuliginoso-nigris, fascia communi mediana ab apice anticarum ad marginem posticarum internum transeunte ochracea, in anticis maculis subrotundis composita, tertia ab apice maculam triangularem includente, maculis alteris subcostalibus sagittiformibus ultra cellulam, maculis submarginalibus quoque ochraceis, iis ad angulum analem majoribus; posticis lunulis sex submarginalibus et ciliis inter venas ochraceis, lunula anali rubra et supra eam squamis quibusdam cæruleis, cauda omnino nigra: subtus ut supra, anticis cellula longitudinaliter ochraceo striata, fascia maculosa indistincta inter fasciam communem et maculas submarginales quoque ochracea; posticis fascia transversa lata nigricante cellulæ finem transeunte, lunulis septem rubidis includente, extrorsum nigro marginatis, lunulis albicantibus exterioribus quoque notata, cauda medialiter ochraceo notata.

♀ adhuc nobis ignota.

Hab. MEXICO, Yucatan¹.

We have never seen a specimen of this species, but through the kindness of Mons. Charles Oberthür we have before us an excellent photograph procured for us by him, and taken from Boisduval's type still existing in the Museum at Bordeaux. From this it appears that *P. ornythion* belongs to this section of the genus, and is not really allied to *P. thoas*, with which Boisduval associated it, although the male has a great similarity to that species; an obvious difference, however, is noticeable in the primaries, which show a row of spots running parallel to and near the outer margin, instead of diverging in the direction of the common ochreous band. As compared with *P. pallas*, *P. ornythion* has a very narrow common band, which is broken up into roundish spots on the primaries, and beneath there is an indistinct band of spots between the submarginal row and the common band. As in *P. thoas* the third ochreous spot from the apex has a dark spot in the middle; this is not found in *P. pallas* and its allies.

The female will doubtless prove to be similar to that of *P. pallas*.

It is curious that so little is known of this insect; this may, however, be due to its having been overlooked from its great similarity to *P. thoas*. At the same time it may prove not to belong to Yucatan at all, but to Cuba, in which case the female may be *P. pirithous* itself. M. Roger had butterflies in his collection from both localities.

Our figure has been prepared from the photograph of the type already mentioned.

58. **Papilio**, sp.?

We have two fragmentary male specimens of a *Papilio* allied to *P. pallas*—one from the line of the Panama Railway, the other taken at sea a few miles from Punta Mala in May 1873; neither of them is sufficiently perfect to enable us to give a full description. They do not, however, quite correspond to any of the forms now before us; they are larger than our examples of *P. theophron*, and have the series of lunules within the black transverse band of the secondaries beneath very indistinct, the fulvous row, which is the innermost, being very large, the rest are in consequence narrow. The outer

border of the transverse band of the primaries is less distinctly cut by the nervures than in *P. pallas*, and the second or third segments from the apex are the only ones that are rounded outwardly. It is possible that these specimens may belong to *P. hippomedon* of Felder, a species with which we are not sufficiently acquainted. We may add that the whole of this group requires careful revision, and this can only be done when the females of the various forms have been collected in sufficient numbers to render their study possible.

59. ***Papilio tolus***, sp. n. (Tab. LXX. figg. 1, 2 ♂, 3, 4 ♀.)

Alis nigricantibus, fascia communi a margine posticarum interno ad venam radialem anticarum inferiorem extendente ochraceo, hujus cellulam omnino extrorsum, macula venæ radialis superioris utrinque, superiore elongata a cellulæ fine fere ad marginem externum extendente, inferiore multo minore, maculis alteris tribus subcostalibus apud cellulæ finem coloris ejusdem; posticis maculis septem submarginalibus subrotundatis ochraceis (ea ad angulum analem rubra excepta), maculis discalibus indistinctis quoque rubidis, ciliis inter venas ochraceis, ea ad angulum analem rubro-atomata: subtus ut supra, anticis maculis quinque submarginalibus et striis cellularibus basi radiantibus ochraceis; posticis maculis mox ultra cellulam rubidis, maculis alteris ultra eas glaucis.

♀ brunneo-nigricantibus; anticarum ciliis inter venas albis; posticis maculis discalibus in serie duplici positae et lunulis marginalibus rubidis, ciliis ipsis albis: subtus fere omnino ut supra, maculis posticarum rubidis magis rosaceis.

Hab. MEXICO (*Sallé*), Tampico (*Richardson*).

This species belongs to the group of which *P. torquatus* of Guiana and the Lower Amazons valley is the oldest known form. It is represented in all parts of Tropical America by allied forms, which are either treated as varieties of *P. torquatus* or distinct species according to the views of different entomologists.

One of the peculiarities of the group is the great difference that exists between the males and females in their coloration. The males are much alike wherever they are found, the females differ considerably. When the latter are studied it appears that their variations are distinctly localized, so that they must be considered as distinct species. This course is further justified by the slight definite characters also shown in the males.

We at present know the following species:—*P. torquatus*, of which *P. caudius* is the female, occurs in Guiana and the Lower Amazons valley; *P. patros* occupies the Upper Amazons; *P. polybius*, the females of which have been called *P. tros* and *P. trojanus*, is the species of South-eastern Brazil; *P. orchamus* occupies Colombia and Venezuela; and in our country the present and following species occur. Another distinct form, of which we have not as yet seen examples, is *P. tasso* of Staudinger, said to be from Brazil. Of *P. peleides* of Esper, which probably belongs to the same group, we have as yet no tidings. As compared with southern species the males of both those now under consideration have the following character in common, but not shared by any of the southern forms. The portion of the subapical spot of the primaries which lies on the upper side of the upper radial nervure is that which approaches nearest to the

outer margin, whereas in the southern forms the reverse is the case, and the lower portion of this spot is the most elongated. The female of *P. tolus* is a very distinct insect, and recalls the female of *P. erostratus* in its colour rather than that of its allies. The female of *P. tolmidès* has not yet been discovered, but the males may be distinguished by the points indicated below. We have long had two male specimens of *P. tolus* in our possession, but we have hesitated to describe them; but the recent acquisition of a specimen of each sex makes the position of the species clear; they were both taken by Mr. Richardson near Tampico.

60. **Papilio tolmidès**, sp. n. (Tab. LXX. fig. 5 ♂.)

Præcedenti similis, sed fascia communi latiore, macula subapicali bifida parte infra venam radialem superiorem multo majore, maculis costalibus vix ullis, interdum omnino absentibus: subtus maculis rubidis ultra cellulam posticarum majoribus, cauda angustiore vix spatulata.

♀ ignota.

Hab. PANAMA, Bugaba, Chiriqui, Veraguas (*Arcé*), Chiriqui (*mus. Staudinger*).

We have three male specimens of this form, all taken in the State of Panama by *Arcé*, and Dr. Staudinger has one from the same district. The differences between this and its allied species have been already pointed out under *P. tolus*.

61. **Papilio erostratus**. (Tab. LXIX. fig. 9, right harpe.)

Papilio erostratus, Westw. Trans. Ent. Soc. v. p. 36, t. 3. ff. 2, 2*¹; Boisd. Lép. Guat. p. 8²; Butl. & Druce, P. Z. S. 1874, p. 365³.

Papilio rhetus, Gray, Cat. Lep. Ins. B. M. p. 65, t. 11. f. 5⁴.

Alis viridi-nigricantibus; anticis ciliis inter venas albis; posticis lunulis septem submarginalibus (ea ad angulum analem rubro atomata) et ciliis late inter venas ochraceo-albidis: subtus fuliginosis; posticis maculis discalibus serie duplici positis rubidis, interioribus late exterioribus anguste nigro marginatis, ciliis ut in pagina superiore: capite et prothorace rubro punctatis.

♀ alis brunnescentioribus; anticis ciliis sicut in mare; posticis maculis discalibus in serie duplici positis et lunulis marginalibus rubidis lilacino lavatis, ciliis ipsis inter venas albidis: subtus magis fuliginosis; posticis maculis ut in pagina superiore sed minoribus et nigro marginatis: capite et prothorace sicut in mare punctatis.

Hab. BRITISH HONDURAS, R. Hondo (*Blancaneaux*); GUATEMALA⁴, Cubilguitz, Panima, Cubulco (*Champion*), Chisoy valley, Dueñas (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*³).

This is a very isolated species, with no near allies, restricted in its range to Central America, where it is chiefly, but not exclusively, found in the mountainous districts up to an altitude of about 5000 feet. The original description was based upon a male from Central America, that of the female upon a Guatemalan specimen which was named *P. rhetus* by Gray, its relationship to *P. erostratus* not then being suspected.

We have no positive evidence that they are male and female of one species, but the fact that all the individuals belonging to the *P. erostratus* form are males, while those of the *P. rhetus* form are females, and that the two are found in the same districts, and,

moreover, that the spots of the head and thorax and the markings of the under surface of the secondaries are similar, show conclusively that such must be the case.

The position of *P. erostratus* thus lies with *P. torquatus* and the group in which the sexes differ widely in the coloration of their wings.

I. *P. PANDION* group.

Papilio, Sect. xlv., Feld. Sp. Lep. pp. 23, 71.

The secondaries have no definite fold, and the inner margin, as in the two preceding groups, is concave. The foliate appendage of the front tibia is attached nearer the proximal than the distal end of that joint. The harpes are like those of *P. erostratus*, having a rounded end, from the middle of which proceeds a central spine with some dentate processes on either side (see Tab. LXX. fig. 11). The scaphium is like that of *P. epidaureus*. The median nervure of the secondaries is generally but slightly produced, and not at all in *P. pandion*. The sexes are similar in coloration.

Also a Neotropical group, the range of the most northern species coinciding with the northern limit of that region. Southwards it extends to Southern Brazil.

62. *Papilio pandion*. (Tab. LXX. figg. 6, 7 ♂; 11, right harpe.)

Papilio pandion, Feld. Reise d. Nov., Lep. p. 79¹; Butl. & Druce, P. Z. S. 1874, p. 365².

Papilio idæus, Fabr. Ent. Syst. iii. p. 16³; Don. Ins. Ind. t. 19. f. 2?⁴; Gray, Cat. Lep. Ins. B. M. p. 63⁵; Butl. & Druce, P. Z. S. 1874, p. 365⁶.

Papilio anchisiades, var. *a*, Gray, Cat. Lep. Ins. B. M. p. 63⁷.

Alis nigro-fuscis; anticis parte distali ultra cellulam vix pallidiore, nonnunquam squamis ad cellulæ finem fascia transversa indistincta formante; posticis plaga distali venis (et interdum plus minusve transversim bisecta) tri- aut quadri-partita lilacenti-rubra, ciliis inter venas ad angulum analem late aliter angustissime albis: subtus anticis ut supra, posticis plaga discali omnino transversim bisecta parte distali rosaceo-albida, maculis alteris rubris nigro cinctis apud angulum apicalem.

♀ mari similis, sed major, alis magis fuliginosis macula cellulæ finem versus distincta et infra eam producta; posticis plaga discali majore et maculis alteris ad angulum apicalem notatis, ciliis inter venas (præter eas ad angulum apicalem) rubris: subtus ut supra plaga anticarum majore; posticis maculis exterioribus plus minusve rosaceo-albis, lunulis ciliaribus omnibus albidis.

Hab. MEXICO⁵ (*Sallé*¹), Jalapa (*Höge*), Cordova (*Höge, Rümeli*), San Lorenzo near Cordova (*M. Trujillo*), Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, R. Hondo, R. Sarstoon (*Blancaneaux*); GUATEMALA, forests of Northern Vera Paz, Polochic valley (*F. D. G. & O. S.*), Chacoj, Panzos (*Champion*), Dueñas (*F. D. G. & O. S.*), Zapote, El Reposo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{2 5}); PANAMA, Bugaba, Volcan de Chiriqui, David (*Champion*), Chiriqui and Calobre (*Arcé*), Lion Hill (*M. Leannan*).

It is a question whether the Mexican and Central-American form of this *Papilio* is referable to *P. idæus* of Fabricius as represented by Donovan in his 'Insects of India.' The figure is a bad one, and shows a yellow band on the primaries not found in any

species that we are acquainted with belonging to this group. We are reluctant, therefore, to supersede Felder's name *P. pandion*, about which there can be no doubt, by this old and ill-defined title, though both Gray and Messrs. Butler and Druce use *P. idæus* in part for the insect now under consideration.

Felder's types appear to have been taken from somewhat abnormal specimens, as the band of spots he speaks of as present on the primaries of the male is rather an unusual character and more frequently wholly absent; his female, too, is one with spotless primaries, whereas the spots on these wings are usually more or less well developed. Compared with the allied species of South America, one point in connection with this band of spots seems characteristic—its maximum development is about the end of the cell, whereas in *P. theramenes* and *P. anchisiades* it appears about the middle of the first median branch, and in *P. evander* as a transverse curved band crossing the wings.

P. pandion has a very extensive range in our country, and is found from the eastern side of the mountains of Southern Mexico to Panama, its place being taken immediately to the southward by *P. theramenes*; it is apparently absent from Western Mexico, but it occurs in Western as well as Eastern Guatemala, and in the mountains up to an elevation of about 5000 feet.

63. *Papilio rogeri*. (Tab. LXX. figg. 8, 9 ♂.)

Papilio rogeri, Boisd. Sp. Gén. p. 278¹.

P. pandioni similis, sed minor; posticis magis dentatis, breviter caudatis, maculis tribus parvis rubris discalibus tantum notatis: subtus anticis maculis quinque linea arcuata positae a cellulæ fine ad angulum analem; posticis maculis ultra cellulam in serie arcuata positae nigris, iis ad marginem internum introrsum rubris. ♀ fascia maculosa discali rubra duplici, et subtus macula subanali rosacea.

Hab. MEXICO, Yucatan (*mus. Roger*¹), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*).

This species was first described by Boisduval from a Yucatan specimen in Mons. Roger's collection¹. We have since received examples from Mr. Gaumer, also from Yucatan, and a single female from Corosal.

Though we have compared it with *P. pandion*, it is perhaps more nearly related to *P. pharnaces*, but may readily be distinguished by the clearly defined spotted band on the primaries beneath, and by the single row of discal spots on both the upper and undersides of the secondaries. In *P. pharnaces* and its allies a double row is always present.

P. rogeri probably enjoys a very restricted range, limited to the promontory of Yucatan and the country immediately adjoining to the southward.

64. *Papilio pharnaces*.

Papilio pharnaces, Doubl. Ann. & Mag. Nat. Hist. xviii. p. 374¹; Gray, Cat. Lep. Ins. B. M. p. 64, t. 5. f. 1².

P. rogeri similis, sed anticis ad apicem magis nigricantibus; posticis fascia discali duplici maculosa lilacino-rubra: subtus anticis fere immaculatis squamis quibusdam albidis ad cellulæ finem; posticis maculis discalibus in serie duplici positis.

♀ mari similis, maculis posticarum discalibus ad angulum apicalem extendentibus.

Hab. MEXICO ¹, Oaxaca (*Fenochio*), Putla (*Rébouch*).

P. pharnaces was described by Doubleday from a specimen in the collection of Mr. Conrad Loddiges, said to have come from South America ¹. Gray subsequently described and figured it from a specimen in the British Museum, doubtfully referred to Guatemala ². All the specimens we have met with are from the Mexican State of Oaxaca, where we believe it is alone to be found. It is one of a small group, which is probably purely Mexican. In size it equals *P. rogeri* of Yucatan, but differs in many respects, as pointed out above. It is much larger than either of the following species, each of which apparently has a distinct domicile.

65. *Papilio phanostratus*, sp. n.

P. pharnaci similis, sed multo minor, alis nigricantioribus, posticis elongatis maculis discalibus multo minoribus, seriebus duabus magis approximatis.

♀ adhuc ignota.

Hab. MEXICO, Jalapa (*Höge*).

We have two specimens of this form of *P. pharnaces*, which were contained in Herr Höge's collection made at Jalapa. Its small size and more elongated secondaries, which have smaller discal spots and a more acute elongated tail, seem to separate it from the allied form. It probably, too, has a distinct domicile confined to the eastern flank of the mountains of the State of Vera Cruz.

66. *Papilio polycharmus*, sp. n. (Tab. LXX. fig. 10 ♂.)

Præcedenti similis et statura ejusdem, posticis multo magis elongatis, fasciis duabus maculosis magis separatis, cauda longiore.

♀ quoque ignota.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*).

This species, which is also allied to *P. pharnaces*, is of the same small size as *P. phanostratus*; but, besides the differences pointed out above, it appears to occupy a very different country, which lies in the State of Sinaloa between the Sierra Madre and the Pacific Ocean. We have a single male specimen taken near Mazatlan by Mr. A. Forrer.

67. *Papilio rhodostictus*.

Papilio rhodostictus, Butl. & Druce, P. Z. S. 1874, p. 364 ¹.

P. pandioni similis, sed anticis fere unicoloribus fascia cellulari a fine magis remota; posticis magis rotundatis et serratis caudam acutam ferente, macula discali lateritia haud lilacino lavata.

♀ mari similis, sed plaga posticarum majore et ciliis inter venas ad angulum analem lateritiis.

Hab. COSTA RICA (*Van Patten*¹), Cache (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).
—ECUADOR.

Though in general appearance this *Papilio* resembles *P. pandion*, its relationship with that species is not very close. The shape of the hind wings, with their deeply dentated margin and their prominent tail, at once separates the two forms; the band on the primaries, too, is narrower and more definite in *P. rhodostictus*, and crosses the cell some way from the end. The sexes are very much alike, resembling Gray's figure of *P. orchamus* of Boisduval, which is a species of the *P. torquatus* group, the male of which is a very different insect. Dr. Staudinger has examples of *P. rhodostictus* from Chiriqui. We only possess the Costa-Rican types, and a female obtained in the same country by Rogers. There is a male specimen from Ecuador in the Hewitson collection.

J. P. ZAGREUS group.

Papilio, Sect. xlv., Feld. Sp. Lep. pp. 24, 71.

The primaries in this section have a smooth costal margin, they are long and rather narrow and rounded at the apex; the secondaries have an indefinite fold, along the edge of which is a pencil of long black hairs, another patch of yellow hairs spreads over the base of the median nervure and its first branch. The foliate appendage of the front tibia is attached rather nearer the proximal than the distal end of the joint. The harpes of *P. zalates* are somewhat like those of *P. thoas*, but the terminal projection is more central (see Tab. LXXI. fig. 3). The sexes are similar.

Owing to the colour of the wings resembling those of some species of *Lycorea*, this is a very peculiar group. Its range is limited, extending from the Upper Amazons Valley and Venezuela to Ecuador and Colombia, one species being found in the State of Panama.

68. *Papilio zalates*, sp. n. (Tab. LXXI. figg. 1, 2 ♂; 3, right harpe.)

Alis nigris; anticis fasciis duabus maculosis, una submarginali maculis octo composita (iis ad apicem maximis) ad angulum analem decrescentibus, altera discali maculis sex composita, una obliqua cellulæ finem versus, altera supra venam medianam, reliquis inter eam et ramos suos; squamis quibusdam ad cellulæ basin quoque ochraceis; posticis medialiter fulvo-aurantiis, area circa venam subcostalem ochracea, vena mediana quoque ochraceo pilosa, venis ultra cellulam nigris, margine nigro maculis septem submarginalibus ochraceis notato: subtus anticis fere ut supra, sed maculis omnibus majoribus, cellula prope venam medianam fulvo-ochracea; posticis vitta subcostali nigra, margine externo nigro sicut in pagina superiore ochraceo notato, maculis alteris interioribus duplicibus glaucescentibus, area interna fulvo-aurantia: corporis lateribus coloris ejusdem; thorace nigro, aurantio striato; prothorace et capite ochraceo punctatis; antennis ochraceis ad basin nigris.

♀ ignota.

Hab. PANAMA, Volcan de Chiriqui (*Arcé, Champion, Trötsch*).

This species belongs to the group of *Papilio* of which *P. zagreus* is the oldest known form, but its nearest ally is *P. ascolius* of Felder from Colombia, and so close is it to
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that species that we have long hesitated to separate it. It may be distinguished, however, by the narrower black border to the secondaries, and by the almost entire absence of the longitudinal ochraceous band which occupies the median portion of the primaries. Mr. Champion's specimens were taken in dense forest near Bugaba, at an altitude of about 1000 feet. He says it is usually a high-flying insect, occasionally descending to the ground, through the openings in the forest, from the tops of the trees.

The whole *P. zagreus* group of *Papilio* have a general resemblance, both in form and colour, to common species of *Lycorea*, *Melinæa*, *Mechanitis*, *Heliconius*, &c., found in their respective localities. *P. zalates* has the coloration of *Lycorea atergatis*, &c., and one of its peculiarities is the blackness of the base of the primaries, so prevalent in representatives of many genera of butterflies in this particular region.

K. P. EUROTAS group.

Papilio, Sect. xlvii., Feld. Sp. Lep. pp. 24, 72.

The fold in the secondaries is indefinite in this group, the hairs along its edge being less developed than in the preceding group. The margin of the secondaries is more deeply dentate. The foliate appendage of the front legs is attached to the middle of the joint. The harpes of *P. phaeton* are narrow, slightly curved rods, the upper and lower edges subparallel; the distal end is divided into branching points, with smaller dentate processes (see Tab. LXXI. fig. 6). In *P. birchalli* the points are more widely separated, each of them dentate; the proximal point issues from the upper edge of the harpe, dividing it into two unequal portions, the proximal being three times as long as the distal. In *P. birchalli* and its ally *P. xanthopleura* the costal margin of the primaries is smooth, whereas in *P. eurotas*, *P. phaeton*, &c. it is distinctly serrate, a character upon which Mr. Butler founded his genus *Pyrrhosticta*. The females in some members of this group, and perhaps in all, are dimorphic and even polymorphic.

The species of this group are not very definite, several of them presenting a considerable amount of variation.

The range of the group is restricted to the Tropical parts of South America, its northern limit reaching Southern Mexico, where a single species occurs. In Costa Rica and the adjoining portion of the State of Panama several others are found.

g. Costal margin of primaries serrate.

69. *Papilio phaeton*. (Tab. LXXI. fig. 6, right harpe.)

Papilio phaeton, Lucas, Voy. Cast. iii. p. 197, t. 1. f. 1¹.

Papilio lætitia, Butl. Cist. Ent. i. p. 84²; Staud. Ex. Tagf. p. 15, t. 10³.

Pyrrhosticta lætitia, Butl. Lep. Ex. p. 164, t. 58. f. 4⁴; Butl. & Druce, P. Z. S. 1874, p. 366⁵.

Alis fuliginoso-nigris; anticis fascia per cellulam prope finem, altera undulata transversa ultra eam angulum analem versus extensa, venis sex- aut septem-partita, striolis costalibus et maculis novem submarginalibus

ochraceis; posticis lunulis submarginalibus (iis ad angulum analem interdum rubris) et fascia discali venis septem-partita ochraceis, maculis quibusdam atomariis ultra hanc: subtus anticis fere ut supra, maculis submarginalibus ad apicem evanescentibus; posticis lunulis submarginalibus septem rubris nigro limbatis, fascia discali fere ut supra extrorsum rubro notata et nigro limbata.

♀ forma prima, fere omnino mari similis.

♀ forma altera, fasciis alarum multo latioribus et ea in anticis diffusa.

♀ forma tertia, maculis et fasciis omnibus viridescentibus, iis anticarum minoribus et magis separatis, iis posticarum magis elongatis et introrsum diffusis.

♀ forma quarta, fascia discali posticarum subtus medialiter fere omnino rubra, squamis quibusdam ochraceis tantum notatis.

♀ forma quinta, præcedenti similis, sed fascia discali anticarum fere obsoleta.

Hab. COSTA RICA (*Van Patten*^{2 4 5}), Irazu (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui³ (*Ribbe, Trötsch*).—COLOMBIA.

It is not without some hesitation that we have come to the conclusion that *P. lætitia* and *P. phaeton* must be considered to belong to one species. The types of the former are, as Mr. Butler states, without prominent tails to the secondaries, and the bands of the wings are rather narrow; but when a series is examined we find both these characters unstable, and we can substitute no others that can be depended upon. Females of this species, or what we take to be such, are very perplexing, as they present such a variety of colouring, especially on the upper surface, as indicated above. Besides the forms there described, we have an imperfectly-developed specimen, evidently a female, which partly combines the characters of the yellow and green banded types.

P. phaeton was described and figured by Lucas in Castelnau's Voyage¹ from a specimen submitted to him by Dr. Boisduval, said to have been obtained in the interior of Brazil. It is now known as a species found commonly in Colombia, and we have specimens both from the neighbourhood of Bogota and from the Cauca valley.

It is probably a denizen of the mountain forests. Mr. Champion found it as high as from 4000 to 5000 feet on the Volcano of Chiriqui.

70. *Papilio cephalus*, sp. n. (Tab. LXXI. figg. 4, 5 ♂.)

P. phaetonti similis, sed anticis fascia discali ultra cellulam haud extensa, maculis submarginalibus in serie arcuata nec bisinuata positis: subtus margine nigro fasciæ discalis lunulis glaucescentibus notato, cauda mediana valde elongata; capite et prothorace supra immaculatis nec ochraceo obscure punctatis.

♀ ignota.

Hab. PANAMA, Volcan de Chiriqui (*Trötsch, in mus. Staud.*).

This species is founded upon a single male specimen in Dr. Staudinger's collection. It is closely allied to *P. phaeton*, but differs in the points indicated above, which, though small in themselves, seem, when taken together, sufficient reason for separating it.

71. *Papilio victorinus*.

Papilio victorinus, Doubl. Ann. & Mag. Nat. Hist. xiv. p. 418¹; Gray, Cat. Lep. Ins. B. M. p. 35, t. 6. f. 3².

Papilio helleri, Feld. Reise d. Nov., Lep. p. 91, t. 13. ff. *c*, *d*³.

Papilio amphissus, Hopff. Stett. ent. Zeit. 1866, p. 27⁴.

Alis nigricantibus; anticis fascia submarginali maculosa, altera interiore ad cellulæ finem evanescente, ochraceis; posticis fasciis duabus maculosis ochraceis, una lunulata submarginali (lunulis ad angulum analem interdum rubidis), altera discali, inter eas lunulis quibusdam atomosis viridi-ochraceis: subtus fuliginoso-nigris, anticarum apice pallidiore; anticis fasciis maculosis ut supra, exteriori abbreviata, interiore ad costam extensa, macula bifida ad cellulæ finem ochracea; posticis lunulis submarginalibus rubris nigro limbatis, maculis quoque rubris fere rotundis in serie leviter arcuata ultra cellulam posita, macula ad marginem internum partim ochracea, ciliis inter venas anguste ochraceis.

♀ forma prima, fere omnino mari similis.

♀ forma altera, posticis fascia interna lata viridi-ochracea venis divisa, fasciis alteris exterioribus quoque viridi tinctis.

Hab. MEXICO^{3 4}, Jalapa (*Höge, Schaus*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*), Oaxaca (*Fenochio*); GUATEMALA, Polochic and Central valleys (*F. D. G. & O. S.*); HONDURAS (*mus. Staudinger*); NICARAGUA, Chontales (*Belt*).

P. victorinus was described by Doubleday from a female specimen said to have come from the west coast of America¹, whence it was brought by Sir Edward Belcher during the voyage of H.M.S. 'Sulphur.' Unfortunately the exact locality where it was obtained was not recorded; but it was probably found between Nicaragua and Southern Mexico, the limits which we now assign to the range of the species. The figure of the type differs slightly from the females before us in that the intermediate row of spots on the secondaries is absent; we do not attach much importance to this fact, as their arrangement is very variable in females of this species.

A female from Honduras, sent us by Dr. Staudinger, differs from either of the forms referred to in our description in that the inner and middle row of spots on the secondaries are fused into one large greenish patch cut by the end of the cell and the nervures radiating therefrom. The spots, too, on the primaries near the anal angle are nearly merged into a single elongated series, and beneath the spots in this region are of a greenish rather than of an ochreous colour. In the absence of other evidence we believe this female to be an extreme form of that sex of *P. victorinus*.

In Mexico this species is not uncommon on the slopes of the mountains between Jalapa and Cordova, and we have a single specimen from the State of Oaxaca. In Guatemala we believe it is confined to the eastern side of the mountain-range, occurring sparingly in the Polochic and adjoining valleys.

72. *Papilio vulneratus*.

Papilio vulneratus, Butl. Cist. Ent. i. p. 85¹.

Pyrrhosticta vulnerata, Butl. Lep. Ex. p. 165, t. 58. f. 3²; Butl. & Druce, P. Z. S. 1874, p. 366³.

P. victorino similis, sed anticis maculis fasciæ interioris ochraceæ majoribus, iis fasciæ submarginalis multo minoribus; posticis maculis interioribus majoribus et guttiformibus, maculis submarginalibus parvis rotundis, lunulis medianis nullis: subtus anticis fascia interiore multo majore maculis suis omnibus majoribus; posticis macula ultima ad angulum analem omnino ochracea.

Hab. COSTA RICA (*Van Patten*^{1 2 3}).

The single mutilated specimen described by Mr. Butler is the only one we have seen of this insect. It formed part of Van Patten's great Costa-Rican collection so often referred to in these pages¹. The species is clearly allied to *P. victorinus*, but differs in the points indicated above.

73. *Papilio eurotas*. (Tab. LXXI. fig. 7, right harpe.)

Papilio eurotas, Feld. Wien. ent. Mon. vi. p. 66¹; Reise d. Nov., Lep. p. 85².

Alis nigricantibus; anticis fascia transversa perobliqua per medium cellulæ angulum analem versus extensa, vena mediana et ramo suo secundo quadripartita, una parte cellulari indistincte tetragona, duabus elongatis ramum medianum secundum utrinque, quarta supra eas parvula subtriangulari, maculis quoque octo submarginalibus ochraceis; posticis lunulis submarginalibus octo et seriebus duabus discalibus obsoletis viridi-olivaceis: subtus fuliginoso-nigris; anticis maculis ut supra, sed submarginalibus ad apicem absentibus; posticis lunulis submarginalibus rubris nigro marginatis et serie discali fere recta maculis subrotundis bene separatis composita, ea ad angulum analem flava, reliquis flavidis extrorsum rubris et nigro marginatis.

♀ nobis ignota.

Hab. PANAMA, Volcan de Chiriqui (*Trötsch, mus. Staud.*).—ECUADOR; RIO NEGRO^{1 2}.

This species is very closely allied to *P. bitias* of Godart, with which we identify a specimen from South-east Brazil in our collection. From this it differs in having the transverse band of the primaries wider, and its lower edge not parallel to the inner margin. In the position and shape of this band *P. eurotas* resembles *P. lenæus*, but that species is distinguished by having a transverse yellow band on the secondaries. *P. ctesias* is still more nearly related to *P. bitias*, having a similar transverse band on the primaries, but, according to Felder, it is a larger species with those wings more elongated.

P. eurotas was described by Felder from specimens from the Rio Negro, and we have several specimens of it from Ecuador. Its presence in our country rests upon a single male example from the Volcan de Chiriqui in Dr. Staudinger's collection.

h. Costal margin of primaries smooth.

74. *Papilio birchalli*. (Tab. LXXI. figg. 8, 9 ♂; 10, right harpe.)

Papilio birchalli, Hew. Trans. Ent. Soc. ser. 3, i. p. 517¹.

Alis nigricantibus; anticis maculis submarginalibus octo viridi-ochraceis, iis ad apicem guttiformibus, ea ad angulum analem duplici, maculis alteris indistinctis angulum analem versus interioribus; posticis plaga magna a costa per cellulæ finem ad ramum medianum secundum pallide viridi-ochracea venis sexpartita, ultra eam angulum analem versus viridi-squamosis, maculis septem submarginalibus viridi-ochraceis: subtus nigricantibus; anticis fascia quinquepartita ochracea, una parte sublunulata ultra mediam cellulæ, altera infra venam medianam reliquis ad angulum analem, maculis quatuor alteris ad marginem internum; posticis lunulis submarginalibus rubris nigro-cinctis, fascia maculosa fere recta, macula ad costam et ea ad angulum analem pallide flavis, reliquis rubidis subobsoletis.

♀ mari similis, sed alis supra viridi-chalybeo nitentibus, plaga interna posticarum magis diffusa; subtus macula costali fasciæ discalis rubra (nec ochracea), reliquis magis distinctis.

Hab. PANAMA, Chiriqui (*Ribbe, mus. Staud.*), Bugaba (*Champion*).—COLOMBIA¹; ARGENTINE REPUBLIC.

We have Hewitson's type of this species before us; this was formerly in the collection of the late William Birchall, of Birkenhead, to whom it was sent from Colombia by a brother who resided for some time in that country. We have another Colombian example obtained by Salmon in the Cauca valley. With these the Chiriqui specimens agree very closely, differing only in the band of the secondaries being wider and occupying rather more of the cell. Another male specimen in our collection was sent by Mr. Reeve to his relative Mr. Druce; it was captured near the Rio Quarto in the Province of Cordova in the Argentine Republic, and agrees accurately with the Chiriqui examples, showing that this rare and little-known species has a very extensive range.

P. birchalli has no very near ally, though its general resemblance to *P. coræbus* may at once be recognized. But the costa is smooth and not serrate as in that species, a character considered generic by Mr. Butler. *P. xanthopleura* has also a smooth costa, and is probably most nearly allied to *P. birchalli*; the differences, however, in colour are very obvious, and the remarkable yellow patch on either side of the body of *P. xanthopleura* at once distinguishes it from all other members of the genus, *P. birchalli* having no such character.

L. P. ASCLEPIUS group.

Papilio, Sect. xlviii., Feld. Sp. Lep. pp. 25, 72.

Very similar to the preceding group, but the outer margin of the secondaries deeply dentate, the median nervure being produced and slightly spatulate. The harpes are also similar, but with the distal end more decidedly truncate, a strong spine issuing from each corner (see Tab. LXXI. fig. 3). The sexes are usually very similar in coloration, but rare instances of dimorphism in the females are known.

The range of this group is confined to Southern Mexico and Central America from Guatemala to Chiriqui.

75. *Papilio asclepius*. (Tab. LXXII. fig. 3, right harpe.)

Heraclides asclepius, Hübn. Samml. ex. Schmett. iii. t. —¹.

Euphœades garamas, Hübn. Samml. ex. Schmett. iii. t. —².

Papilio cincinnatus, Boisd. Sp. Gén. i. p. 346³.

Papilio abderus, Hopff. Neue Schmett. t. 1. ff. 1, 2⁴.

Alis nigris; anticis fascia mediana extrorsum dentata, maculisque quinque subapicalibus flavis; posticis fascia mediana per cellulæ finem, extrorsum bene serrata et ciliis inter venas flavis, maculis indistinctis squamis paucis cæruleis compositis inter fasciam et marginem externum: subtus, anticis ut supra ad apicem magis fuliginosis, maculis subapicalibus fere confluentibus et ad angulum analem in serie submarginali extendentibus; posticis fascia mediana pallidiore, lunulis septem nigris introrsum fulvo, extrorsum glauco, extus

marginata, lunulis submarginalibus introrsum tenuissime flavo marginatis fulvis, inter eas et lunulis internis squamis sparsis ochraceis notatis, cauda omnino nigra.

♀ mari similis, sed major, posticis lunulis submarginalibus flavis notatis: subtus lunulis internis nigris majoribus et extrorsum glauco latiore marginatis.

♀ altera, fasciis integris alarum flavis nullis, posticis lunulis fulvis maculis glaucis utrinque notatis.

Hab. MEXICO^{1 2} (*Deppe*^{3 4}), Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes, Sallé*), Oaxaca (*Fenochio*).

This fine species was first figured by Hübner, in the third, incomplete, volume of his 'Sammlung exotischer Schmetterlinge,' from Mexican specimens—one which he calls *Heracles asclepius*, male, the other, a female, *Euphœades garamas*, both in reality representing females, the latter a dimorphic female of the former. The male was first made known by Hopffer, who described it under the name of *P. abderus*, from Mexican specimens obtained by Deppe, which are now in the Berlin Museum. For some time we were under the impression that *P. abderus* and *P. asclepius* were distinct species, and that *P. electryon* of Bates was referable to the former; but with our present series we are convinced that *P. abderus* and *P. asclepius* are male and female of the same species, which has a purely Mexican domicile, *P. electryon* being slightly different and inhabiting a different country.

P. asclepius is probably restricted to the forest-regions of Southern Mexico. We have no positive evidence that it occurs on the mountain-slope of the western range.

76. *Papilio electryon*. (Tab. LXXII. figg. 1, 2 ♂.)

Papilio electryon, Bates, Ent. Monthly Mag. i. p. 3¹.

P. asclepio similis, fascia mediana per cellulam attenuata costam haud attingente, fascia posticarum extrorsum minus profunde serrata; posticis subtus lunulis internis nigris introrsum vix fulvo marginatis, lunulis submarginalibus fulvis saturatioribus haud flavo limbatis.

Hab. GUATEMALA, Central valleys¹, Polochic valley (*F. D. G. & O. S.*), Purula (*Champion*).

During our visit to Guatemala in 1861–62 we obtained a single male specimen of this species, which served as the type of Mr. Bates's description¹. A few others were subsequently sent us from the valley of the Polochic, and Mr. Champion captured two males in the upland forest-region near Purula. Unfortunately the female is unknown to us at present, and we are therefore unable to say whether it possesses submarginal yellow lunules to the secondaries, as in *P. asclepius*, or is without them, as in *P. syedra*.

The differences between *P. electryon* and the male of *P. asclepius* are slight, but, so far as we can see, quite constant.

77. *Papilio syedra*. (Tab. LXXII. figg. 4 ♂, 5 ♀.)

Papilio syedra, Godm. & Salv. P. Z. S. 1878, p. 271¹.

P. asclepio quoque affinis; subtus lunulis internis nigris introrsum late saturate ferrugineis, extrorsum quoque late cæruleis; lunulis submarginalibus omnino saturatioribus.

♀ mari similis, supra posticis lunulis submarginalibus nullis.

Hab. COSTA RICA, Rio Sucio (*Rogers*); PANAMA, Volcan de Chiriqui (*Arcé*¹, *Champion*, *Ribbe*¹).

At first sight *P. syedra* closely resembles *P. asclepius*, the band crossing the cell retaining a nearly uniform width to the costa, instead of becoming narrow as in *P. electryon*. The black lunules across the secondaries beneath have on the inside wide dark maroon edges, and the bluish scales beyond them are more numerous and more diffused than in either of the allied species. The female has no submarginal yellow lunules, and thus differs from that sex of *P. asclepius* at first sight.

Its range is probably restricted to the mountainous portions of Costa Rica and Chiriqui. Mr. Champion's specimens were taken at an elevation of about 3000 feet above the level of the sea.

M. P. DAUNUS group.

Papilio, Sect. xlix. Subsect. A, B, & Sect. li. Subsect. D, E, Feld. Sp. Lep. pp. 25, 26, 27, 73, 75.

There is no definite fold near the inner margin of the secondaries in this group, and the edge is not so decidedly hairy as in the preceding groups. The inner margin, too, is concave. The foliate appendage to the front tibia is attached nearer the proximal than the distal end of that joint. In *P. daunus* the harpes are subtriangular, the lower edge is produced into a long sharp spine, and the outer edge is irregularly serrate (see Tab. LXXII. fig. 9). In *P. pilumnus* the spine is not so long, but the serration is deeper near the angle from which the spine proceeds (see Tab. LXXII. fig. 10). *P. americanus* exactly resembles *P. machaon* in the shape of its harpes; they are of a linear form, the distal half of the upper edge being distinctly serrate (see Tab. LXXII. fig. 8). The external parts of the female are more highly chitinized and of more singular form than in any other group of American *Papilio* we have examined.

This group alone of those found within our region is of decidedly northern affinities, and it also has, in *P. machaon* and its allies, connections in the Old World.

78. *Papilio daunus*. (Tab. LXXII. fig. 9, right harpe.)

Papilio daunus, Boisd. Sp. Gén. i. p. 342¹; Reak. Proc. Ent. Soc. Phil. vi. p. 124²; Strecker, Lep. Rhop. & Het. p. 45, t. 6. ff. 1, 2³; W. H. Edwards, Butt. of N. Am. ii., *Papilio*, t. 2⁴.

Alis ochraceis; anticis fasciis transversis quatuor nigris, prima a costa ad marginem internum extensa, secunda per cellulam et ultra eam indistincte ducta, tertia ad cellulæ finem, quarta ultra eam valde irregulari, margine externo late nigro, fascia submarginali venis divisa ab apice decrescente ochracea, linea atomaria interiore indistincta quoque ochracea; posticis linea transversa per cellulam et margine interno ad angulum analem conjunctis, nigris, margine externo late nigro maculas cærulescentes includente, lunulis submarginalibus ochraceis, iis ad angulum analem ferrugineis: subtus ut supra sed pallidioribus, linea submarginali et linea atomaria multo magis distinctis; posticis lineola ad cellulæ finem, vena mediana et ramo suo secundo apud cellulam nigris, margine externo nigro ad marginem internum fulvo introrsum limbo,

maculis cæruleis luniformibus et extra eas squamis paucis ochraceis, lunulis submarginalibus latioribus, posticis elongatis, profunde dentatis, vena mediana valde elongata, caudata, incurvata, ramis suis quoque elongatis, primo excurvato.

♀ mari similis, posticis magis profunde dentatis et caudatis.

Hab. North-western America from Oregon and Montana southward to Arizona and New Mexico.—MEXICO ¹, near Durango city (*Becker*), Jalapa (*F. D. G.*, *Höge*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*), Omilteme (*H. H. Smith*), Oaxaca (*Fenochio*); GUATEMALA, Dueñas, Los Altos (*F. D. G. & O. S.*).

This fine species was described by Boisduval from specimens sent from Mexico, where it is not uncommon in the upland parts of that country, as far south as the State of Oaxaca. It occurs also in the highlands of Guatemala between 5000 and 8000 or 9000 feet above the sea, frequenting open grassy tracts. Its northward extension reaches to Oregon; but northern specimens are, as a rule, smaller than Mexican, and of a lighter yellow colour; their markings, however, appear to be essentially of a similar character, and the outer margin is deeply dentate.

79. *Papilio pilumnus*. (Tab. LXXII. fig. 10, right harpe.)

Papilio pilumnus, Boisd. Sp. Gén. i. p. 340¹; Reak. Proc. Ent. Soc. Phil. vi. p. 127²; Mén. Cat.

Mus. Petr., Lep. ii. p. 110, t. 7. f. 2³; Strecker, Lep. Rhop. et Het. p. 13, t. 2. f. 3⁴.

Præcedenti similis, sed fasciis alarum omnibus latioribus; anticis fasciis transversis tribus nec quatuor; posticis margine externo nigro ad angulum analem valde sinuato et ferrugineo limbato: sulcus fascia transversa communi introrsum fuliginosa; posticis margine externo nigro introrsum profunde sinuoso, lunulis suis nigerrimis irregulariter sitis, lunulis submarginalibus ochraceis ferrugineo tinctis.

Hab. NORTH AMERICA, Colorado and New Mexico ⁴.—MEXICO ^{1 3}, Vera Cruz ⁴, Rincon, Xucumanatlan (*H. H. Smith*); GUATEMALA, Polochic valley, Dueñas, mountains near Coban (*F. D. G. & O. S.*).

This species also was first described from Mexican specimens¹, and it has a very similar range in our country. It is found at a rather lower elevation, as it occurs between Acapulco and the Sierra Madre del Sur, at a height of about 3000 feet, and is also found in the same range up to 7000 feet above the sea. In Guatemala it also occurs at very varied altitudes. In North America it occupies more restricted area than *P. daunus*, as there are no records of it northward of Colorado. Like *P. daunus*, it frequents open grassy plains.

80. *Papilio alexiaries*. (Tab. LXXII. figg. 6, 7 ♂.)

Papilio alexiaries, Hopff. Stett. ent. Zeit. 1866, p. 31¹.

P. dauno similis, sed *P. turno* forsan proximus, fasciis anticarum quatuor latis secunda et tertia distinctis, margine externo nigro latiore, fascia maculosa submarginali vix ulla; posticis margine externo leviter sinuato, cauda sicut in *P. turno*, lunulis submarginalibus obsoletis.

Hab. MEXICO (*in Berlin Mus.*¹), Cuesta de Misantla (*M. Trujillo*).

BIOL. CENTR.-AMER., Rhopal., Vol. II., March 1893.

A single male specimen obtained by Trujillo on the Cuesta of Misantla, below Jalapa, we believe to be referable to this species, described by Hopffer from a Mexican specimen in the Berlin Museum¹. It belongs to the same section as *P. daunus* and *P. pilumnus*, but is more nearly related to the more northern *P. turnus* and *P. rutulus* than to either of the two Mexican species. On the whole we think it is closest to *P. turnus*; the outer border of both wings is considerably broader than in any of its allies, and the submarginal band of the primaries and the lunules of the secondaries being nearly obsolete, are other points of distinction. The arrangement of the submarginal markings of the secondaries agrees best with *P. turnus*, but the inner yellow submarginal band is much wider than in that species.

81. *Papilio polyxenes*.

Papilio polyxenes, Fabr. Syst. Ent. p. 444¹; Scudder, Butt. E. United States &c. ii. p. 1353²; Staud. Ex. Tagf. p. 18, t. 12³.

Papilio ajax, Clerck (nec Linn.), Icones, t. 33. f. 3⁴.

Papilio troilus, Drury (nec Linn.), Ill. Nat. Hist. i. p. 21, t. 11. ff. 2, 3, 5⁵; Smith, Abb. Lep. Ins. Georg. i. p. 1, t. 1⁶.

Papilio asterias, Cram. Pap. Ex. t. 385⁷, ff. C, D; Boisd. Sp. Gén. p. 332⁸; Mén. Cat. Mus. Petr. p. 4⁹.

Papilio asterioides, Reak. Proc. Ac. Nat. Sc. Phil. 1866, p. 331¹⁰; Strecker, Lep. Rhop. et Het. p. 47, t. 6. f. 4¹¹.

Alis nigrescenti-brunneis; anticis fasciis duabus maculosis submarginalibus, maculis exterioribus rotundis interioribus subtriangularibus ochraceis, macula altera subcostali, squamis quibusdam ad cellulæ finem, coloris ejusdem; posticis fascia transversa mediana venis divisa, lunulis submarginalibus et ciliis inter venas ochraceis, maculis quoque discalibus cæruleis, ea ad angulum analem lunulata, supra macula nigro pupillata introrsum rubida extrorsum ochracea: subtus ut supra sed magis fuliginosis, maculis anticarum interioribus et omnibus posticarum (præter duas ad angulum analem) fulvis, prothorace et abdomine fulvo maculatis.

♀ mari similis, maculis interioribus minoribus* aut evanescentibus, maculis posticarum discalibus cæruleis majoribus.

Hab. NORTH AMERICA¹, United States⁸ generally¹¹.—MEXICO^{8 9}, Ciudad Victoria (*Richardson*), Jalapa (*Höge*), Coatepec (*Brooks*), Cordova (*Rümeli*, *Höge*), Atoyac (*H. H. Smith*), Puebla and Amecameca (*F. D. G. & H. J. Elwes*), Oaxaca (*Fenochio*); BRITISH HONDURAS, Rio Hondo (*Blancaneaux*); GUATEMALA, Polochic valley, Central valleys (*F. D. G. & O. S.*), Chiacam, Cahabon, Tamahu, Panima, Purula, San Gerónimo (*Champion*), Dueñas (*Champion*, *F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*fide Strecker*).—SAN DOMINGO; CUBA.

In our country this is obviously a very variable species, and so far as we can see it is not possible to separate North-American specimens from those of Mexico and Central America. The chief point of variation is in the inner band of yellow spots which crosses both wings; in some examples these are very distinct, in others they are much reduced in size, and in others again they entirely disappear. As a rule they are smaller

in the female than in the male; but we have males before us in which they can scarcely be traced. Reakirt described a Mexican example under the name of *Papilio asterioides*¹⁰, and Mr. Strecker has figured a specimen under this name¹¹. The latter we believe to be strictly referable to *P. polyxenes*; but we are a little doubtful whether Reakirt's insect belongs to the same species.

As will be seen from the above list of localities, *P. polyxenes* is abundant throughout Mexico and Guatemala, chiefly on the higher grounds. Mr. Strecker says that he has received it from Costa Rica, but our collectors have only sent us *P. americanus* from that country.

A full account of the transformations and life-history of this insect will be found in Mr. Scudder's work². The larvæ feed on Umbelliferæ of many kinds.

82. *Papilio americanus*. (Tab. LXXII. fig. 8, right harpe.)

Papilio americanus, Koll. Wien. Denkschr. i. p. 354 (1850)¹; Staud. Ex. Tagf. p. 18, t. 12².

Papilio sadalus, Luc. Rev. Zool. 1852, p. 133, t. 10. f. 4³; Butl. & Druce, P. Z. S. 1874, p. 365⁴.

P. polyxeni affinis, sed fascia alarum communi interna multo latiore, in posticis dimidio cellulæ distali occupante distinguendus.

Hab. COSTA RICA (*Van Patten*⁴), San Francisco (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*).—COLOMBIA; VENEZUELA¹, ECUADOR³.

This species takes the place of *P. polyxenes* in Costa Rica and all countries lying to the south of it as far as Venezuela on the one hand and Ecuador on the other. It may readily be distinguished from its ally by the much broader common ochraceous band, especially on the secondaries. It does not appear to be subject to the same variation as *P. polyxenes*, and we have not any dark forms, such as are seen in the allied species.

It was first described by Kollar from specimens obtained by Sulkowsky, near Angostura, on the Orinoco¹, and subsequently by Lucas under the name of *P. sadalus*, from examples taken by Bourcier in the environs of Quito in Ecuador³. It is commonly met with in collections from Colombia.

NOTE.

Heracles andraemon, Hübn. Samml. ex. Schmett. ii. tt. 98, 99.

Papilio andraemon, Lucas, in Sagra's Hist. Cuba, vii. p. 203; Gray, Lep. Ins. Brit. Mus. p. 24; Mén. Cat. Mus. Petr., Suppl. p. 68; Feld. Sp. Lep. p. 21.

This well-known Cuban *Papilio* is said by Gray, Ménétriés, and Felder to occur in Honduras and Mexico, but we are unable to confirm these statements; its admission, therefore, into our fauna must remain in abeyance.

Fam. HESPERIIDÆ.

In our treatment of this Family, so largely represented in Mexico and Central America, we have followed in the main the classification recently proposed by Mr. E. Y. Watson in the 'Proceedings' of the Zoological Society, which is an exemplification of that of Mr. Scudder. Mr. Watson's system, being based solely upon the specimens in the British Museum, is not complete, but it covers a great deal of ground, far more indeed than any other classification previously elaborated. The alterations and additions now made arise from the necessity of grafting upon Mr. Watson's scheme the names of many fresh species represented in our collection and not included in the British Museum series. We have also been able to add a number of others from Dr. Staudinger's collection, as well as from that of Mr. W. Schaus. Dr. Staudinger's kindness in lending us his series has been invaluable, as amongst them are many types of Herrich-Schäffer and Mons. P. Mabille, the sight of which has enabled us to determine a large number of species with accuracy. Free access to the British Museum has further enabled us to compare our specimens with the types of Hewitson and others, so that on the whole we have been able to see a very large number of original specimens, and the accuracy of our determinations cannot fail to have been greatly enhanced by this means. We much wished to have had an opportunity of consulting Plötz's drawings of Hesperiidæ, but have failed in our endeavours of so doing. This omission has been partially remedied by drawings made from such of Plötz's types as are in the Berlin Museum; and a number of specimens of Hesperiidæ given us by Herr Semper, and named in many instances from Plötz's drawings themselves.

Mr. Watson divides the Family into three subfamilies as follows:—

PYRRHOPYGINÆ.—A well-marked group of closely allied genera confined entirely to the New World and readily recognized by the large blunt club to the antennæ, a constant character. The cell of the primaries is also invariably very long, being more than two-thirds the length of the costa. The lower discocellular is shorter than the middle discocellular, so that the origin of the lower radial is nearer the median than the subcostal. The wings, when the insect is at rest, extend in one plane.

HESPERIINÆ.—A group including all species having a costal fold in the male, all in which the lower discocellular is longer than the middle, and all (with few exceptions) which rest with the wings in one plane. In some long-celled genera the lower discocellular is shorter than the middle. The antennæ almost without exception end in a fine point; when otherwise, the cell is short.

PAMPHILINÆ.—A group including all species with a discal band or stigma on the primaries of the male, and all species in which the lower discocellular is shorter

than the middle. The species of this group rest with their wings raised over their backs, but the secondaries are sometimes depressed. The cell of the primaries is almost invariably less than two-thirds the length of the costa, and the antennæ almost always end in a point.

As in the foregoing Families we have examined the male secondary sexual organs and find an almost endless variety of structures. We have not ventured to use these characters in building up any system of classification, as we consider the time is hardly come for their adoption for such a purpose. But we have found them invaluable in deciding points of specific distinction where the external characters are not clearly defined. In some cases a slight external feature distinguishes two forms, which is sometimes greatly strengthened by a marked divergence in the male genitalia, and sometimes no difference can be traced in these organs. In the former case a specific difference between two similar forms can safely be conceded, while in the latter the opposite course should be followed. Our drawings of these organs have been made somewhat diagrammatic, especially as regards the upper member or tegumen, but care has been taken to represent all the various points and lobes in their relative positions, as well as the outline and serration of the edges of the harpagones or harpes.

The Hesperiidæ are cosmopolitan in their range, and even many American genera extend into the Old World; but we do not propose to enter here upon any discussion concerning the details of their distribution, a subject which will be examined elsewhere.

Subfam. *PYRRHOPYGINÆ*.

Pyrrhopygini, Mabille, Ann. Soc. Ent. Belge, xxi. pp. 12 et seq. (1878).

Pyrrhopyginæ, Watson, P. Z. S. 1893, p. 10.

This subfamily contains the whole of the species belonging to the old genus *Pyrrhopyge* in its undivided state, *Oxynetra* and *Myscelus*, and includes upwards of 100 species, all of which belong to the Neotropical fauna. The most prominent characteristic of the subfamily as a whole is the structure of the antennæ, which have stout shafts and a long, thick, blunt club, more or less bent into a hook. This club never terminates in an acute point as is the case in nearly all other Hesperiidæ. The palpi are densely hairy, except the third joint, which is short, erect, and naked, the point just appearing beyond the hairs of the second joint. The cell of the primaries is long and always more than two-thirds the length of the costa. There is no costal fold or any outward sexual brand on the wings or body. The lower discocellular is always shorter than the middle. The radial of the hind wing is generally but not always absent. The hind tibiæ have terminal and subterminal pairs of spurs, the latter usually feeble, and even absent in *Ardaris*. The thorax and body are very stout and strong,

these insects being of very powerful and rapid flight. When at rest the wings are extended horizontally.

Mr. Watson divides the subfamily into twelve genera, and this division might be carried further. Of the genera now established eight occur within our limits; the remaining four, which are unrepresented, are *Mahotis*, *Ardaris*, *Mimoniades*, and *Microceris*,—*Mimoniades* being the only one of any extent as regards the number of its component species.

PYRRHOPYGE.

Pyrrhopyge, Hübner, Verz. bek. Schmett. p. 102 (1816); Wats. P. Z. S. 1893, p. 11.

Pyrrhopyga, Westwood, in Doubl. & Hew. Gen. Diurn. Lep. p. 508; Plötz, Stett. ent. Zeit. 1879, p. 520 (partim).

This genus, as restricted by Mr. Watson, is represented in Mexico and Central America by twelve species belonging to most of the leading forms, including the more typical, such as *P. phidias*, as well as some of the more aberrant, as *P. æsculapius*, *P. jonas*, and *P. erythrosticta*.

Pyrrhopyge belongs to the section of the subfamily in which the middle and lower discocellulars of the primaries are very obliquely placed with reference to the axis of the wing, and in this respect it differs from *Oxynetra*. The club of the antennæ is much thickened, the shaft also being stout. The secondaries have no radial nervure, the second median segment of the primaries is about half as long again as the third segment, and the lower discocellular of the secondaries meets the median beyond the origin of the second median branch; the upper discocellular of the primaries is very short, and meets the subcostal at the origin of the fourth branch; the second subcostal segment is longer than the third, and the third than the fourth. The hind tibiæ have a distinct fringe or mane of hairs springing from the dorsal edge. This last character at once separates *Pyrrhopyge* from *Mysoria*, though not peculiar to *Pyrrhopyge* alone.

1. P. HYPERICI section. (Typical.)

1. *Pyrrhopyge phidias*. (Tab. LXXIII. fig. 4.)

Papilio phidias, Linn. Mus. Ulr. p. 334¹; id. Syst. Nat. i. p. 795²; Clerck, Ic. Ins. t. 44. f. 1³.

Pyrrhopyga phidias, Plötz, Stett. ent. Zeit. 1879, p. 533⁴.

Alis chalybeo-nigris, ciliis albis, capite, palpis et abdominis apice coccineis: subtus posticis linea transversa basin versus plus minusve venis divisa alba, anticis immaculatis.

♀ mari similis.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Chiriqui (*Arcé*, *Trötsch*), Calobre, Santiago de Veraguas (*Arcé*).—SOUTH AMERICA, from Colombia to South Brazil.

Our Central American examples of this species agree with Clerck's figure³ in having

a narrow white transverse band near the base of the secondaries, the primaries being black throughout. In the allied forms, *P. fluminis*, Butl., and *P. latifascia*, Butl., this band spreads to the base of the primaries and is usually much wider. The character is, however, decidedly variable, and it is even doubtful if there is really more than one species of this form.

P. phidias seems to be common in the State of Panama, but we have no evidence of its occurrence in any other part of Central America. On the southern continent its range is very extensive.

The male genitalia have a great general resemblance to those of *P. hyperici*, the type of the genus *Pyrrhopyge*. The anterior portion of the harpes is not so produced, and the bristles near the angle of the ventral edge are not so strong. (See Tab. LXXIII. fig. 4.)

2. *Pyrrhopyge zenodorus*, sp. n. (Tab. LXXIII. figg. 1, 2, 3 ♂.)

? *Pyrrhopyga thasus*, Butl. & Druce, P. Z. S. 1874, p. 367 (nec Cramer)¹.

Alis chalybeo-nigris, ciliis anguste albis, capite et abdominis apice aurantio-coccineis, prothorace antico et palpis concoloribus: subtus ut supra, coxis anterioribus chalybeo-nigris.

♀ mari similis.

Hab. MEXICO, Coatepec and Rinconada (*Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*); GUATEMALA, Cubilguitz, Cahabon (*Champion*), Polochic Valley (*O. S. & F. D. G.*); COSTA RICA (*Van Patten*¹).—E. PERU.

This orange-red-headed species, with its dark wing-coverts, seems most nearly allied to *P. charybdis*, Westw., both species having dark and not red coxæ to the anterior legs. *P. zelevus* (Fabr.) is also allied, but the coxæ in that species are red*.

From *P. charybdis*, *P. zenodorus* can readily be distinguished by the more orange tint of the head and the extremity of the abdomen. Its range is general through the eastern portions of our country, from the middle of the State of Vera Cruz to Costa Rica†. It appears again in Eastern Peru, but we have not yet met with it in any collection from the intervening countries. In Mexico and Eastern Guatemala it occurs in the hotter regions, but ascends the mountains to an elevation of 4000 feet near Coatepec. We never found it in the lowlands of Guatemala bordering the Pacific Ocean.

The genitalia of the male of *P. zenodorus* resemble those of *P. phidias*, the two

* We follow M. Mabille in applying Fabricius's name to this species, and Mr. Watson does the same. Plötz, however, as well as Hopffer transpose the names *zelevus* and *charybdis*, ascribing black anterior coxæ to the former and red ones to the latter. The type of *P. charybdis*, now in the British Museum, proves that they are certainly wrong in the latter case.

† The only *Pyrrhopyge* of this form represented in Van Patten's collection belongs to this species; we therefore infer that it was misnamed *P. thasus*¹ in Messrs. Butler and Druce's List. *P. thasus*, Cr., is a very distinct species, and even, as now appears, belongs to a distinct genus, *Mysoria*.

diverging projections from the middle of the dorsal edge of the harpes being less developed. (See Tab. LXXIII. fig. 3.)

3. *Pyrrhopyge gellias*, sp. n.

Alis supra saturate olivaceo-nigris ad basin saturatioribus, ciliis albis; posticis margine externo ad ramum medianum primum sensim dentato, fascia submarginali nitida olivacea venis nigris divisa: subtus fere unicoloribus obscure olivaceo-nigris, anticis ad basin posticis medialiter pilis nigris vestitis; capite, palpis, coxis anterioribus et abdominis apice fulvescenti-rufis.

Hab. COSTA RICA (*mus. Staudinger*).

Dr. Staudinger has lent us a single specimen of this species, apparently a male, which differs sufficiently from *P. gazera*, Hew., its nearest ally, to justify its separation. The secondaries are much more lengthened than in *P. gazera*, and bear a distinct projection at the end of the first median branch, the submarginal bright band is hardly so distinct and less broken by the dark nervules, the colour generally is of a more olive tint, and the head and tip of the abdomen are tawny red instead of crimson. Not possessing specimens of *P. gazera* or of this species for dissection, their position in the genus must at present remain uncertain.

2. *P. HADASSA*, Hew., section. Fringe of both wings reddish orange.

4. *Pyrrhopyge hæmon*, sp. n.

Alis brunneo-nigricantibus; anticis ciliis, posticis margine externo (introrsum profunde sinuato) cum ciliis rufo-aurantiis: subtus ut supra, posticis ad basin immaculatis; capite, palpis et abdominis apice coccineis, coxis anterioribus nigris.

♂ adhuc ignotus.

Hab. COSTA RICA (*mus. Staudinger*).

This species comes close to *P. phylleia*, Hew., of Bolivia, but differs in having a rather wide rufous-orange margin to the secondaries instead of a narrow one as in the allied form. Like *P. phylleia* it has a red head and black coxæ to the anterior legs, in the former character differing from *P. hadassa* and its allies.

The specimen we describe is a female and belongs to Dr. Staudinger, who kindly lent it to us for examination and description. It is the only example of this section of *Pyrrhopyge* we have seen from Central America.

3. *P. SCYLLA* section. Male genitalia widely aberrant.

5. *Pyrrhopyge menecrates*.

Pyrrhopyga menecrates, Mab. Ann. Soc. Ent. Belge, xxi. p. 13 (1878) ¹.

Pyrrhopyge menecrates, Wats. P. Z. S. 1893, p. 11 ².

Alis chalybeo-nigris, albo ciliatis; capite, palpis, prothorace et abdominis apice coccineis: subtus fere ut supra, coxis anterioribus chalybeo-nigris.

Hab. HONDURAS (*Dyson, in Mus. Brit.*²).—COLOMBIA; VENEZUELA; PERU¹ and S. BRAZIL.

Though very similar to *P. zenodorus* in outward appearance, and to be distinguished chiefly by the deeper red colour of the head and apex of the abdomen, this species is really very distinct, and in the structure of the male genitalia closely resembles *P. scylla*, described below, which, again, has external characters of its own.

P. menecrates was described by M. Mabilie from a specimen in the Brussels Museum from Peru. We have a series of examples chiefly collected by Mr. H. H. Smith at Chapada in South Brazil, and there is one in the British Museum obtained by Dyson in Honduras. The latter is our sole authority for including the species within our fauna.

6. *Pyrrhopyge scylla*. (Tab. LXXIII. figg. 5, 6 ♂.)

Pyrrhopyga scylla, Ménétr. Cat. Mus. Petr., Lep. i. p. 95, t. 4. f. 7¹.

Pyrrhopyge scylla, Wats. P. Z. S. 1893, p. 11².

Pyrrhopyga dulcinea, Plötz, Stett. ent. Zeit. 1879, p. 532³.

Alis chalybeo-nigris, ciliis albis; prothorace supra, linea utrinque per tegulæ medium, abdominis apice et palpis extrorsum coccineis, capite inter oculos nigro albo punctato; thorace supra striis duabus indistinctis longitudinalibus glaucis notato.

♀ mari similis.

Hab. MEXICO, Jalapa (*Schaus*), Teapa (*H. H. Smith*); GUATEMALA, Polochic and Motagua Valleys (*F. D. G. & O. S.*), Cahabon, San Gerónimo, Paraiso (*Champion*); HONDURAS (*Dyson*); NICARAGUA (*Ménétriés*¹), Chontales (*Belt*); PANAMA (*fide Plötz*³), Bugaba (*Champion*), Veraguas (*Arcé*).—COLOMBIA; VENEZUELA.

In general appearance this species is very like *P. zenodorus* and *P. zealeucus*, but may at once be distinguished by the colour of the head between the eyes, which, instead of being red, is black spotted with white. There are two indistinct glaucous lines down the thorax and a narrow rufous line on the middle of each tegula: these characters are well shown in *Ménétriés*'s figure, but the latter is a variable feature and frequently absent without reference to locality. The male genitalia of both forms are precisely alike.

The range of this species within our region is very similar to that of *P. zenodorus*, but it hardly goes so far north; and in Guatemala it occurs in the forest-region bordering the Pacific Ocean. In the southern continent it is not widely diffused, and at present we have not traced it beyond Colombia and Venezuela.

In the structure of the male secondary organs (Tab. LXXIII. fig. 6) *P. scylla* departs widely from more typical species of *Pyrrhopyge*. The harpagones are much produced and end in a long serrated decurved rod, there are no prominent lobes attached to the middle of the dorsal edge, and the tegumen is simpler, with a single central point and two abbreviated serrate lobes, one on either side of its base. We have only met with a

similar structure in *P. menecrates*, and it proves that the two species are well defined and isolated.

4. *P. JONAS* section. Apex of the abdomen fulvous.

7. ***Pyrrhopyge jonas***. (Tab. LXXIII. figg. 7 ♀, 8 ♂.)

Pyrrhopyga jonas, Feld. Wien. ent. Mon. iii. p. 328¹ (1859); Hopff. Stett. ent. Zeit. 1874, p. 371²; Plötz, Stett. ent. Zeit. 1879, p. 534³.

Pyrrhopyga cydonia, Druce, Cist. Ent. i. p. 289 (1874)⁴.

Alis cyaneo-nigris unicoloribus, ciliis albis; posticis margine externo sensim denticulato; capite nigro, fronte fulvo intermixto: subtus ut supra, palpis, genis et abdominis apice fulvis.

Hab. MEXICO^{1 2}, Cordova (*Höge*), Oaxaca (*Fenochio*⁴); GUATEMALA, San Gerónimo (*Champion*).

Felder's description¹ as well as that of Hopffer² were both based upon specimens from Mexico said to be females. Mr. Druce's type of *P. cydonia*, which we now figure, is probably of the same sex, the outer margin of the secondaries being much rounded and slightly dentate.

This species is only known to us from a single example from each of the localities mentioned above, all of which lie upon the eastern side of the mountains of Central America, at an elevation of about 3000 feet.

Mr. Champion's specimen is a male, and resembles Mr. Druce's type. The genitalia differ considerably from those of more typical *Pyrrhopyge*, as the figure shows (Tab. LXXIII. fig. 8). We have not yet met with a similar structure in any other member of the genus.

5. *P. CHALYBEA* section. Wings edged with fulvous, apex like the rest of the abdomen, not red or orange.

8. ***Pyrrhopyge chalybea***. (Tab. LXXIII. fig. 12.)

Pyrrhopyga zereda, Hew. Ex. Butt., *Pyrrhopyga*, t. 2 (bis). f. 13¹ (nec Trans. Ent. Soc. ser. 3, ii. p. 484).

Pyrrhopyga chalybea, Scudder, Rep. Peab. Ac. Sc. iv. p. 67 (1872)².

Alis æneo-viridibus; posticis chalybeis, omnibus fulvo limbatis, anticis anguste posticis latioribus: subtus ut supra, femoribus omnibus antice fulvis.

Hab. MEXICO¹, Ventanas, Mazatlan (*Forrer*), Guadalajara (*Schumann*), Putla (*Rébouch*).

Hewitson's original description of *P. zereda* was based upon an example said to have come from Ecuador, but he afterwards figured a Mexican specimen¹, mentioning at the same time that it was represented by specimens in Saunders's collection: these latter are now in our possession. On an examination of the Hewitson collection we find that the name *P. zereda* was applied to a species allied to *P. hygieia*, Feld., which we

subsequently described as *P. rufipectus* (P. Z. S. 1879, p. 152). Why Hewitson shifted his name to the Mexican insect is not apparent. The latter must now bear Mr. Scudder's title *.

P. chalybea is strictly confined to Western Mexico. Mr. Forrer secured specimens near Mazatlan, and at Ventanas in the mountains lying between that city and Durango, and Mr. Schumann captured a number of individuals near Guadalajara in the month of July.

The harpagones are not quite symmetrical in this species, the left side having a thickened dorsal edge besides the central projecting lobe. The œdeagus is of very peculiar form. (See Tab. LXXIII. fig. 12.)

6. *P. ÆSCULAPIUS* section. Wings brilliant steel-blue; apex like the rest of the abdomen.

9. **Pyrrhopyge æsculapius.** (Tab. LXXIII. fig. 9 ♂.)

Pyrrhopyga æsculapus, Staud. Verh. zool.-bot. Ges. Wien, 1875, p. 112¹; Exot. Tagf. p. 295, t. 99².

Pyrrhopyga variegaticeps, Godm. & Salv. P. Z. S. 1879, p. 152³.

Alis nitide cyaneis; posticis ad marginem externum saturatioribus, margine ipso rufo; corpore nigro; capite inter oculos fasciis indistinctis tribus albis, palpis nigris; coxis anterioribus nigris.

Hab. COSTA RICA², Rio Sucio (*Rogers*³); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*¹²), Volcan de Chiriqui (*Champion*).

Dr. Staudinger has lent us the type of his *P. æsculapius*, and we find it agrees precisely with those of our *P. variegaticeps*. The species is allied to *P. hygieia*, Felder, but differs in the white markings of the head, the palpi being black instead of red, and in having the rufous of the outer border of the secondaries confined to the fringe. The anterior coxæ are black, and not red as in *P. rufipectus* and *P. rufinucha*.

Rogers obtained several specimens of this species when collecting on the Rio Sucio in Costa Rica. Mr. Champion's specimens were taken at an elevation of between 3000 and 4000 feet on the Volcano of Chiriqui. Ribbe, who first discovered it at Chiriqui, says that it is not common there¹.

10. **Pyrrhopyge creon.** (Tab. LXXIII. figg. 10, 11 ♂.)

Pyrrhopyga creon, Druce, Cist. Ent. i. p. 289 (Sept. 1874)¹; Plötz, Stett. ent. Zeit. 1879, p. 538²; Staud. Exot. Tagf. p. 295³.

Pyrrhopyga cyclops, Staud. Verh. zool.-bot. Ges. Wien, 1875, p. 114⁴.

* In his original description Hewitson states that the type of *P. zereda* is in his own collection; but, in his 'Equatorial Lepidoptera,' p. 69, he says that he took his description of this insect from a specimen in the collection of Mr. Bates. The point is of no consequence, as both types (one of which is in the British Museum, the other in our possession) belong to one species.

Alis cyaneo nigricantibus, medialiter nitidis, ciliis fuscis; posticis macula magna coccinea ad angulum analem: subtus ut supra, sed pallidioribus et omnino nitidis.

Hab. COSTA RICA (*fide Staudinger*³); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*⁴), Volcan de Chiriqui (*Champion*), Calobre (*Arcé*¹).

This beautiful species was described from a single specimen sent us by our collector Arcé from Calobre in the State of Panama, and he subsequently obtained another in the same district. Dr. Staudinger's type was taken by Ribbe at Chiriqui, where Mr. Champion also found it at an elevation of about 4000 feet above the sea.

Dr. Staudinger has kindly lent us the type of his *P. cyclops*, and we find it agrees in every respect with *P. creon*.

The harpes in the specimen dissected are not quite symmetrical. (See Tab. LXXIII. fig. 11.)

7. *P. MACULOSA* section. Primaries with diaphanous spots.

11. **Pyrrhopyge erythrosticta.** (Tab. LXXIII. fig. 13 ♂.)

Pyrrhopyga erythrosticta, Godm. & Salv. P. Z. S. 1879, p. 153¹.

Alis purpureo-nigris; anticis maculis decem semihyalinis, tribus medianis in linea transversa positae, una costali ultra cellulam, quatuor subapicalibus et duabus discalibus (una vena mediana utrinque); macula ad basin inter venam medianam et submedianam rufa, ciliis omnibus inter venas albis: subtus ut supra; anticis ad basin, posticis præter marginem latum externum nigrum aurantiis; capite toto et palpis albo punctatis; macula ad basin tegularum, pedibus externe et fasciis abdominalibus aurantiis.

Hab. GUATEMALA, Cubilguitz (*Champion*); NICARAGUA, Chontales (*Belt*¹); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe, in mus. Staudinger*), Calobre (*Arcé*¹).

This species is closely allied to *P. maculosa* of Hewitson, figured by Felder under the name of *P. agathon*, but differs in having a rufous spot on the primaries in the angle between the median and submedian nervures, and in the narrower black margin to the secondaries beneath.

The range of *P. erythrosticta* is general on the Atlantic side of the mountains of Central America up to an elevation of 1500 feet. In Colombia *P. maculosa* takes its place.

The genitalia of the male are very peculiar, and depart widely from those of typical *Pyrrhopyge*. A lobe which usually lies at the base of the harpes, and has sometimes a serrated edge, is in this species carried forward until it crosses the dorsal margin; the tegumen is forked at the end, and has a point on either side rising from its base; the scaphium is distinctly chitinized. (See Tab. LXXIII. fig. 13.)

12. **Pyrrhopyge araxes.** (Tab. LXXIII. figg. 14, 15, 16 ♂.)

Erycides araxes, Hew. Descr. Hesp. p. 2¹.

Pyrrhopyga cyrillus, Plötz, Stett. ent. Zeit. 1879, p. 529, no. 38².

Alis saturate brunneis, ciliis albis brunneo interruptis; anticis maculis decem semihyalinis, tribus medianis, tribus discalibus, tribus subapicalibus, decima parva ad costam: subtus brunneis, anticis ut supra ad basin

rufescentibus, posticis plerumque rufis, margine externo late brunneo, fasciis tribus irregularibus maculosis nigris, una per cellulam, altera ultra eam, tertia discali aurantio-rufis: corpore subtus aurantio-rufo, abdomine nigro cincto.

♀ mari similis.

Hab. MEXICO (*Mus. Brit.*¹), Milpas in Durango (*Forrer*), Rincon, Xucumanatlan in Guerrero (*H. H. Smith*), Cordova (*Rümeli*), Oaxaca (*fide Plötz*²).

Hewitson's description of this species was based upon a Mexican specimen now in the British Museum. Our Mexican series of examples agrees generally with the type, though there is a considerable amount of variation as regards the definition of the markings of the underside of the secondaries. In Arizona specimens these marks are evanescent, and the dark outer border is not clearly defined on its inner edge. The difference is sufficient to constitute a distinct race. Plötz also recognized two forms, but unfortunately gave a new name, *cyrillus*, to the true *araxes*, the Arizona form being his *araxes*. To rectify this we propose to call the northern insect *Pyrrhopyge arizonæ*, specimens of both sexes being in our collection, sent us by Morrison from the neighbourhood of Fort Grant.

The true *P. araxes* appears to be more abundant in Western than in Eastern Mexico, as we have received a good series of specimens both from Mr. Forrer and Mr. Herbert Smith; and according to Plötz it occurs as far south as the State of Oaxaca². In Eastern Mexico, Rümeli found it near Cordova; and though we have other specimens without precise locality which probably came from the same district, this is the only exact locality we know of. Mr. Schaus has several examples in his collection, but none of them are definitely located.

P. araxes has sometimes been assigned to the genus *Myscelus*, but the structure of the antennæ and the neuration indicate that it should be placed in *Pyrrhopyge*. The male genitalia somewhat resemble those of *P. phidias*, the dorsal edge of the harpes having two lobes directed backwards. The tegumen has a short, slender, central hook and a stronger one less curved on either side; the scaphium is fully developed and chitinized. (See Tab. LXXIII. fig. 16.)

MYSORIA.

Mysoria, Watson, P. Z. S. 1893, p. 12.

This genus, of which the type is *Papilio acastus*, Cram., was separated from *Pyrrhopyge* by Mr. Watson. One of the best characters by which it can be distinguished is the absence of the dorsal row of hairs on the hind tibiæ prominent in *Pyrrhopyge*. This character is not employed by Mr. Watson, though we think it of considerable utility, as it brings into this genus *M. amra*, *M. affinis*, and *M. galgala*, a more natural position for them than in *Pyrrhopyge*. Thus expanded the genus contains nine or ten species, four of which occur within our limits. Compared with *Pyrrhopyge*, *Mysoria* has

stouter antennæ, the primaries are more elongated, the cell being very long. In the secondaries the second branch of the submedian is emitted at or about the end of the cell, and the hind tibiæ are destitute of a dorsal fringe of hairs.

1. **Mysoria venezuelæ.** (Tab. LXXIII. fig. 17.)

Pyrropyga acastus, auctt. (nec Cram.), Math. Ent. Monthly Mag. xix. p. 19¹.

Pyrropyga venezuelæ, Scudder, Rep. Peab. Ac. Sc. iv. p. 67 (1872)².

Pyrrhopyge venezuelæ, Watson, P. Z. S. 1893, p. 12³.

Alis chalybeo-cyaneis ad basin viridescentioribus, ciliis albis; capite postico, palpis bitriente basali et abdominis apice coccineis: subtus ut supra, posticis costa anguste coccinea, margine externo late (angulum analem haud extensa) luteo; corpore linea laterali utrinque et abdomine maculis duabus utrinque coccineis.

Hab. MEXICO, Cordova (*Rümel*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*Arcé, Trötsch*), Calobre (*Arcé*).—SOUTH AMERICA, Taboga I. (*Mathew*¹), Colombia and Venezuela² to S. Brazil and Paraguay.

This insect has usually passed under the name of *Papilio acastus*, Cramer, but a careful examination of Cramer's figure, a very poor one, leads us to believe that two species have been confused under this name; the figure shows no red costal margin on the underside of the secondaries, universally present in specimens from the greater portion of tropical South America. We should not think so much of this fact were it not that we possess a specimen, taken by Whitely near Roraima, in British Guiana, which exactly agrees with Cramer's figure and has no trace of a red costal margin. Cramer's title therefore strictly belongs to the Guianan insect, and that applicable to the much commoner and more widely spread form is *P. venezuelæ*, Scudd., a name which has not been recently recognized*. Some variation exists in the width of the yellow margin of the hind wings: it is narrowest at the extreme limits of the range of the species, *i. e.* in Central America and South Brazil, and becomes wider in the intermediate country. *M. venezuelæ* resembles in many respects *M. amra*, but besides being a smaller and more elongated insect, and possessing other minor distinctive characters, it can at once be recognized by the crimson costal margin of the hind wings, which in *M. amra*, and also in *M. affinis*, is yellow.

This species appears to be quite rare in Eastern Mexico, but is common in the State of Panama and thence southward throughout its range. Mr. Mathew found some full-grown larvæ of this insect in the island of Taboga, in the bay of Panama. He says:—"The larva, which is soft and flabby to the touch, is clothed with fine straw-

* Mr. Kirby places *Papilio barcastus* of Sepp as a synonym of *P. acastus*, Cramer, meaning no doubt the species we now recognize as *M. venezuelæ*, and if this identification were correct, Sepp's name would have priority; but, as already pointed out by Plötz (Stett. ent. Zeit. 1879, p. 535), *P. barcastus* applies to a species in which the outer border of the secondaries beneath is wholly scarlet, and is an older title of *P. verbena* of Butler. The same species is also figured by Clerck (Ic. Ins. t. 44).

coloured hairs, is somewhat cylindrical in shape, and tapers towards each extremity; head cordate, and very large in proportion to the size of the larva, and of a brick-red; general colour reddish brown, with well-defined segmental rings of a deeper hue, and narrow black, yellow, and reddish perpendicular lines on each segment; under surface, claspers, and prolegs light red. When full fed it spins a loose network cocoon between chinks of bark and therein turns to a light red pupa with many segmental black spots, and covered with fine white down, and a purplish powdery bloom. The eyes are black and very prominent. The butterflies emerge in about three or four weeks."

The genitalia of the male have a very strong spine with a broad base on the dorsal edge of the harpagones, and some smaller spines towards the extremity. The tegumen divides at the extremity and has a long lateral spine on either side, which, arising from the base, is directed at first downwards, then abruptly upwards, and finally forwards. (See Tab. LXXIII. fig. 17.)

2. *Mysoria affinis*. (Tab. LXXIII. figg. 19, 20, 21 ♂.)

Pyrrhopyga affinis, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 57¹; Scudder, Rep. Peab. Ac. Sc. vi. p. 67 (1871)².

Alis nigricanti-chalybeo-viridescentibus, ciliis late albis; posticis purpurascensioribus; capite postico, palporum triente basali et abdominis apice coccineis purpureo tinctis; fronte, capite summo et palporum apicibus chalybeo-cyaneis: subtus ut supra, sed viridescentioribus, posticis margine costali et margine externo fere ad angulum analem cum linea laterali corporis utrinque et lineola postoculari luteis.

Hab. MEXICO, Mazatlan (*Scudder*²), Presidio de Mazatlan (*Forrer*), Acapulco, La Venta in Guerrero (*H. H. Smith*), Guerrero (*W. Schaus*).

Dr. Staudinger has kindly lent us the type of this species described by Herrich-Schäffer, and we find several specimens in our collection from various parts of Western Mexico which agree with it in all essential points, but the wings, especially the primaries, are rather more elongated and the outer margin more concave.

The species is nearly allied to *M. amra*, both having the same narrow orange margin on the underside of the secondaries, but the several points of distinction mentioned in the description of *M. amra* clearly show that the two insects are specifically different. They both occur in the same region in Western Mexico, but *M. affinis* appears to spread a little farther to the northward and *M. amra* goes farther south.

The male genitalia have the tegumen somewhat similar to that of *M. venezuela*, but the lateral spines run directly upwards from the base and terminate abruptly in a short point directed forwards. The harpes are without the spines on the middle and on the extremity of the dorsal edge. (See Tab. LXXIII. fig. 21.)

3. *Mysoria amra*. (Tab. LXXIII. fig. 18.)

Pyrrhopyga amra, Hew. Ex. Butt., *Pyrrhopyga*, iii. t. 3. ff. 16, 17¹; Math. Ent. Monthly Mag. xix. p. 18².

P. affini similis, sed capite postico fronte concolori, linea laterali corporis utrinque coccinea nec lutea et lineola postoculari alba nec lutea distinguenda.

Hab. MEXICO¹, Jalisco (*Schumann*), San Blas (*Mathew*², *Richardson*), Putla (*Rébouch*), Rincon, Acapulco in Guerrero (*H. H. Smith*); GUATEMALA, Rio Naranjo (*Champion*).

Hewitson described this species from Mexican specimens in his own and Saunders's collections; those of the latter are now before us; and we have received several examples from different parts of Western Mexico, where this species has a somewhat extensive range. Our only Guatemalan specimen was taken by Mr. Champion on the Rio Naranjo, close to the frontier of Mexico, at an elevation of about 400 feet above the sea.

Mr. Gervase F. Mathew says² that *M. amra* "was noticed at San Blas, on the coast of Mexico, in December 1873; it was taken for some species of day-flying moth, for its habits were quite unlike those of any butterfly I had previously met with. They flew very rapidly during the hottest part of the day, and were fond of passing backwards and forwards in front of some favourite bush, before which they occasionally stopped and hovered, their wings being moved with extreme rapidity. Sometimes they would suddenly alight on the underside of a leaf and were lost to view, and one's beating-stick had to be brought into requisition to dislodge them. At other times before settling they would fly in a short jerking manner, somewhat after the fashion of the Long-tailed Skippers (*Eudamus*)."

The lateral points in the tegumen are short, nearly straight, and directed forwards and upwards; the dorsal edge of the extremity of the harpes is undulating and serrate, but without prominent spines. (See Tab. LXXIII. fig. 18.)

4. *Mysoria galgala*. (Tab. LXXIII. fig. 22.)

Pyrrhopyga galgala, Hew. Trans. Ent. Soc. ser. 3, ii. p. 483¹; Plötz, Stett. ent. Zeit. 1879, p. 531².

Tamyris strigifera, Feld. Voy. Nov., Lep. p. 505, t. 70. ff. 7, 8³.

Pyrrhopyga strigifera, Plötz, Stett. ent. Zeit. 1879, p. 531⁴.

Alis chalybeo-nigris ad apicem viridescientioribus, ciliis albis; anticis stria mediana transversa rufescente; capite summo, palporum apicibus et corpore toto purpureo-nigris; maculis duabus inter oculos, capitis basi, maculis dorsalibus, palpis, et maculis abdominalibus utrinque ferrugineo-coccineis: subtus ut supra, stria transversa anticarum per posticas extendente.

Hab. PANAMA, Chiriqui (*Ribbe*, *Zahn*), David (*Champion*).—COLOMBIA^{2 3}; VENEZUELA^{1 2 3}.

P. galgala of Hewitson and *T. strigifera* of Felder were both based upon Venezuelan specimens, though the latter name also included others from Colombia. Plötz recognized both names; but as specimens from both localities and also from the State of Panama show no practical difference, we use Hewitson's older title for the species as a whole. The transverse bands of the primaries vary somewhat in width, but apparently without reference to locality.

M. galgala is not common in the State of Panama, and the few specimens we have seen all came from the neighbourhood of Chiriqui.

The harpagones of the male are shorter and more rounded at the extremity but armed with stronger teeth than in *Mysoria venezuelæ*, and have a strong projection on the middle of the disc; moreover, the spine proceeding slightly backwards from the middle of the dorsal edge is absent; the lateral piece of the tegumen is more slender, straighter, and directed forwards. (See Tab. LXXIII. fig. 22.)

Mr. Watson placed this species in *Pyrrhopyge*, but the smooth dorsal edge of the hind tibiæ indicates that it should be removed to *Mysoria*, though the discocellular nervure of the secondaries meets the median a little beyond the origin of the second branch. The third segment of the median nervure of the primaries is much shorter compared with the second segment than in typical *Mysoria*. In the style of its coloration it stands quite alone.

AMENIS.

Amenis, Watson, P. Z. S. 1893, p. 12.

In many respects this genus resembles *Pyrrhopyge*, and has the dorsal fringe to the hind tibiæ as in that genus, but the third segment of the median nervure of the primaries is short, being considerably less than half the second segment, the second median branch of the secondaries rises at the end of the cell and not before it, and the radial of those wings is more or less developed. The genus contains only two species, one of which occurs in the State of Panama.

1. *Amenis ponina*. (Tab. LXXIII. figg. 23, 24 ♂.)

Pyrrhopyga ponina, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 57¹; Plötz, Stett. ent. Zeit. 1879, p. 531².

Amenis ponina, Wats. P. Z. S. 1893, p. 12³.

Alis chalybeo-nigris, ciliis fulvis; anticis, præter marginem externum latum, olivaceis, venis nigris divisis; macula celulari, altera supra venam submedianam (ambabus nigro cinctis) coccineis; capite summo nigricanti-cæruleo ferrugineo maculato; tegulis linea mediana, thorace postico maculis duabus, coccineis, thorace quoque lineis duabus glaucescenti-rufis; posticis unicoloribus: subtus anticis area costali glauca, macula cellulari ut supra, ea supra venam subcostalem cervina; posticis præter marginem externum et venas glaucescentibus ad basin albicantioribus; palpis, pectore, maculis abdominalibus et ano ferrugineis.

Hab. PANAMA, Chiriqui (*Trötsch*, in *mus. Staudinger*).—VENEZUELA².

This species, which we identify as Herrich-Schäffer's *P. ponina*¹, is closely allied to the better-known *A. pionia*, but differs in having the fringe fawn-colour instead of white, and in the absence of the glaucous spots near the anal angle of the secondaries. The presence of this species in Central America is proved by a specimen from Chiriqui in Dr. Staudinger's collection; this he has kindly lent us, and we find that it agrees accurately with a specimen from Merida in Venezuela in our collection. Plötz gives La Guayra, also in Venezuela, as a locality for this species².

The male genitalia in *A. pionia* are somewhat similar to those of typical *Pyrrhopyge*; the two elongated rods proceed backwards from the middle of the dorsal edge of the harpagones, the tegumen is divided and has a blunt rod proceeding from the base on either side. (See Tab. LXXIII. fig. 25.)

YANGUNA.

Yanguna, Watson, P. Z. S. 1893, p. 12.

Yanguna has the dorsal fringe of hairs to the hind tibiæ as in *Pyrrhopyge*. The third segment of the median of the primaries is short and less than half the second segment, the third segment of the subcostal is about half the second segment; the second median branch of the secondaries starts from before the end of the cell. *Y. crida* is aberrant, inasmuch as the second and third segments of the subcostal are subequal.

The number of species in this genus is about seven or eight, two of which occur in our region.

1. *Yanguna cosyra*. (Tab. LXXIV. figg. 1, 2 ♂.)

Pyrrhopyga cosyra, Druce, Cist. Ent. i. p. 363¹.

Alis purpureo-nigris; anticis bifasciatis, fascia una per cellulam trifida, altera ultra eam bifida, maculis tribus subapicalibus, omnibus semihyalinis; anticis ad basin posticis bitriente basali fulvis; thorace paulo obscuriore: subtus chalybeo-nigris, anticis fasciis et maculis ut supra, posticis immaculatis; capite nigro albo punctato, palpis (præter apices) genis, femoribus extus et annulis abdominalibus albis.

Hab. GUATEMALA, Cubilguitz (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*, *Arcé*¹), Chiriqui (*Ribbe*, in *mus. Staudinger*).—COLOMBIA; PERU.

This species is closely allied to *Pyrrhopyga spatiosa* of Hewitson, the type of which came from Ecuador. The describer of the latter species did not distinguish between Nicaraguan specimens obtained by Belt and his types from Ecuador. Mr. Druce, however, described Panama examples under the name we now use, but made no comparison with its near ally¹. Compared with *Y. spatiosa*, the present species is more fulvous on the body and at the base of the wings, the Ecuadorian form being of a darker, redder colour, the rings on the abdomen are much more definite, the bands on the primaries are nearly parallel instead of converging, and the palpi are almost entirely white; moreover *Y. spatiosa* has a red spot on the secondaries beneath near the base which does not appear in *Y. cosyra*. On the whole the two forms seem fairly separable.

Though a widely distributed species it is nowhere common.

The male genitalia have the harpagones much as in typical *Pyrrhopyge*. The tegumen is divided in the middle, each portion being bent downwards with a rounded end; there is a subtriangular lateral lobe from each side, the outer edge of which is serrate. (See Tab. LXXIV. fig. 2.)

2. *Yanguna crida*. (Tab. LXXIV. fig. 3.)

Pyrrhopyga crida, Hew. Trans. Ent. Soc. 1871, p. 167¹; Ex. Butt., *Pyrrhopyga*, t. ii. f. 14².

Alis purpureo-nigris; anticis striga transversa per cellulæ finem ad angulum analem opalescente semihyalina: subtus ut supra, capite, palpis et ano ferrugineis, coxis anterioribus nigris.

Hab. NICARAGUA, Chontales (*Belt*¹).—COLOMBIA.

We have two specimens of this species taken by Mr. Belt at Chontales in Nicaragua. A third example captured at the same place is in the Hewitson collection in the British Museum¹. *Y. crida* is allied to *Papilio arinus* of Cramer, and *Pyrrhopyga pedaia* of Hewitson, but differs in the narrowness and greater length of the transverse hyaline band of the primaries, and in having the anterior coxæ black and not red. Dr. Staudinger's specimen from Colombia has a white fringe to the secondaries, that of the types of *Y. crida* is wholly worn off.

The male genitalia are not quite symmetrical, for on one side the harpago has two lobes on the dorsal edge, that on the other side has only one, and the outline of the terminal portion is not quite the same in each case. The tegumen has the lateral lobes very feeble, the central portion is blunt and cleft vertically near the end. (See Tab. LXXIV. fig. 3.)

SARBIA.

Sarbia, Watson, P. Z. S. 1893, p. 13.

The type of this genus, *S. xanthippe*, has the dorsal edge of the hind tibiæ smooth as in *Mysoria*. The second segment of the subcostal of the primaries is twice as long as the third segment, which, again, is shorter than the fourth; the third segment of the median is less than half the second segment, the second median branch of the secondaries starts from beyond the cell.

The male genitalia of *S. xanthippe* are somewhat like those of typical *Pyrrhopyge* as regards the tegumen, which has the central piece cleft and a long lateral rod on each side; the harpagones are armed with a very strong terminal hook, which bends back over the dorsal edge.

1. *Sarbia luteizona*.

Pyrrhopyga luteizona, Mab. Pet. Nouv. Ent. 1877, p. 162¹; Ann. Soc. Ent. Belg. xxi. p. 15 (1878)².

“Alis nigris; anticis duas fascias pallide luteas offerentibus, unam e tribus maculis in disco alteram obliquam ex apice usque ad marginem internum, illius dimidio inferiori non maculari et paulum oblitterato. Posticis fascia lata lutescenti zonatis. Fimbria posticarum lutea nigro intersecta. Subtus alis vix pallidioribus fasciis latioribus, confluentibus, fasciaque alia brevi, lutea, basilari; capite, ano, palpisque aurantiacorum rubris.”

Hab. MEXICO (*Mus. Brussels*).

We have not seen an example of this species, which was described by M. Mabilie from a single female specimen in the Brussels Museum, said to come from Mexico¹. It is compared with *S. oneka* (Hewitson).

JEMADIA.

Pyrrhopyge, auctt. partim.

Jemadia, Watson, P. Z. S. 1893, p. 14.

In this genus Mr. Watson includes the species of *Pyrrhopyge* which are all more or less of a black colour, with hyaline spots on the primaries and blue stripes on the secondaries; the third median segment of the primaries is very short, not more than a third or even a fourth as long as the second segment; the subcostal branches are distinct from one another, the second subcostal segment being more than twice as long as the third. The second median branch of the secondaries starts before or at the end of the cell. The posterior tibiæ have a distinct dorsal crest of hairs.

The species of this genus much resemble one another externally, and are very difficult to discriminate satisfactorily, but the great diversity of the male genitalia shows that a number of true species exist. The number more or less known to us is about sixteen, and others doubtless exist in collections. Of these, six occur within our limits, Guatemala being the extreme northern range of the genus.

These six species can be recognized by the following key:—

- a. Two transverse blue bands near the base of the primaries.
 - a'. A series of four hyaline spots in the apex of the primaries, two in the disc.
 - a''. Spots on the disc united, prothorax spotted above.
 - a'''. No median band on the secondaries 1. *hospita*.
 - b'''. A median band on the secondaries above 2. *hewitsoni*.
 - b''. Spots on the disc separated; prothorax with a transverse bluish line, not spotted 3. *macleannani*.
 - b'. Five hyaline spots in the apex, one in the disc; prothorax with a transverse bluish line.
 - c''. Outer blue band of the secondaries beneath slightly broken up with black towards the costa 4. *patrobas*.
 - d''. Outer blue band of the secondaries beneath much broken up 5. *azeta*.
- b. Blue lines at the base of the primaries radiating outwards in the direction of the nervures 6. *licinus*.

Owing to the difficulties connected with the nomenclature of the species of this genus, largely increased by Hewitson's frequent practice of describing one specimen and figuring another, often of a different species, we now take the opportunity of figuring all the Central-American species, except *J. licinus*, with their male genitalia, our names having been determined by direct reference to the types in the British Museum.

1. **Jemadia hospita.** (Tab. LXXIV. figg. 4, 5, 6 ♂.)

Pyrrhopyga patrobas, Hew. Ex. Butt., *Pyrrhopyga*, 1, descr. partim nec fig. 1¹.

Pyrrhopyga hospita, Butl. Ann. & Mag. N. H. 1877, xx. p. 128².

Pyrrhopyge hospita, Wats. P. Z. S. 1893, p. 14³.

Alis cyaneo-nigris; anticis striis transversis duabus basalibus duabus, ad angulum analem margine interno subparallelis et linea interrupta evanescente submarginali cyanescentibus, macula magna trifida mediana, altera bifida discali lineari, tertia quadripartita arcuata subapicali hyalinis; posticis lineis tribus approximatis a basi prope marginem internum, fascia submarginali venis divisa ad angulum analem extendente, cyanescentibus: subtus ut supra, macula mediana anticarum ad costam producta; posticis linea submarginali (ad costam latiore) cum altera ad marginem internum juncta, altera transversa subbasali quarta mediana nec costam nec reliquas attingente, cyaneis, omnibus venis nigris divisis; ciliis inter venas albis; capite summo albo maculato, thorace quadristriato, abdomine (linea dorsali excepta) albo cincto.

♀ mari similis, alis minus acutis.

Hab. GUATEMALA, Chisoy and Polochic valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, David, Bugaba (*Champion*), Chiriqui, Calobre (*Arcé*).—COLOMBIA¹; ECUADOR; E. PERU, Ucayali².

Hewitson, when describing the female of his *P. patrobas*¹ evidently referred to a specimen of this species as its male, as he says that that sex differs in wanting the middle blue band of the secondaries. The specimens in his collection, as arranged by him, prove that he had confused the two species together. In cases such as this, where an author has figured one species and described another under the same name, we think it best to retain the name for the figure as giving the best interpretation of the author's views as to the species he was introducing. Hewitson's name *P. patrobas*, therefore, should not be applied to this species, but to the very distinct one described below. Mr. Butler's name, based upon specimens collected by Mr. Walter Davis on the Rio Ucayali in Peru, can therefore be used². We have examined the types in the British Museum, and find that our series from Central America and elsewhere agrees very closely with them. *J. hospita* is the only species in our country which has spots on the prothorax, two united hyaline discal spots on the primaries, and no median blue band on the secondaries. Its range is extensive and spreads from Eastern Guatemala through Central America to Panama, and thence southwards to the Valley of the Amazons.

It is a species of the hot country, its vertical range not exceeding 2000 feet.

The male genitalia have a short blunt tegumen ending in a double lobe, there is besides an elongated slender lobe on either side directed outwards; the ventral edge of the harpagones is nearly straight, the end is rounded, blunt, and slightly serrated, and there is a long recurved lobe with a serrate rounded end on the dorsal edge. The scaphium is densely chitinized, the outer edge having a distinctly granular surface. (See Tab. LXXIV. fig. 6.)

A male from Bugaba is figured.

2. *Jemadia hewitsoni*. (Tab. LXXIV. figg. 7, 8, 9 ♂.)

Pyrrhopyga vulcanus, Hew. Ex Butt., *Pyrrhopyga*, t. 1. f. 2 (nec Cramer) ¹.

Pyrrhopyga hewitsoni, Mab. Ann. Soc. Ent. Belg. xxi. p. 19 (1878) ².

Pyrrhopyge hewitsoni, Wats. P. Z. S. 1893, p. 14 ³.

Alis cyaneo-nigris; anticis fasciis tribus maculosis semihyalinis, una trifida per cellulam, altera bifida ultra eam, tertia quadripartita subapicali, striis duabus obliquis ad basin cæruleo-albis, macula vena submediana bipartita ad angulum analem, et linea irregulari submarginali cærulescentibus, ciliis nigris; posticis lineis tribus a basi juxta marginem internum radiantibus albicantibus, macula triangulari a vena submediana dependente et linea discali ad angulum analem decrescente cærulescentibus, ciliis inter venas albis: subtus anticis fasciis semihyalinis ut supra; posticis fasciis tribus distinctis notatis, una semibasali, una submarginali integra, tertia intra eas per cellulæ finem; corpore toto nigro, thorace striis quatuor longitudinalibus cæruleo-albicantibus, abdominis lateribus eodem colore transfasciatis; prothorace et capite summo nigris albo maculatis; palpis medialiter, genis et femoribus extus albis.

Hab. PANAMA, Calobre (*Arcé*). — SOUTH AMERICA, from Colombia and Amazons Valley to Brazil.

The male of this species was figured by Hewitson as that sex of *Pyrrhopyga vulcanus*, an identification questioned by M. Mabilie, who bestowed Hewitson's name upon that draughtsman's figure ².

We have now a good series of specimens of *J. hewitsoni*, which prove its range to extend from Panama southwards over the whole of the valley of the Amazons, and thence to Chapada in Matto Grosso, where Mr. Herbert Smith found it in abundance. Unfortunately we have only one specimen from Panama, and that a female, but we have little doubt it is rightly referred to this species. *J. hewitsoni* resembles *J. hospita* in having a spotted prothorax and in the juxtaposition of the two hyaline discal spots, but it may at once be distinguished by the presence of a median band on the secondaries above.

The genitalia of the male have a somewhat peculiar tegumen, which has a slender central projection split at the end, on each side is a deep lobe, the lower angle of which projects slightly; the harpagones have a strongly serrated dorsal edge towards the distal end, this portion ending at either extremity in a sharp thorn-like spine, in the centre of the disc is a sharp spine. (See Tab. LXXIV. fig. 9.)

A male from Muzo, Colombia, is figured.

3. *Jemadia macleannani*, sp. n. (Tab. LXXIV. figg. 10, 11, 12 ♂.)

Alis cyaneo-nigris; anticis ciliis nigris, striis transversis duabus basalibus, duabus ad angulum analem margine interno subparallelibus et linea interrupta evanescente submarginali cyanescentibus; macula trifida per cellulam, duabus haud attingentibus discalibus (interdum obsoletis) et linea arcuata quadripartita subapicali hyalinis; posticis striis tribus transversis margine externo subparallelibus, una basali albicante reliquis cærulescentibus, ciliis inter venas albis: subtus anticis fere ut supra, posticis linea cærulea submarginali lata ad costam latiore et linea angusta nigra longitudinaliter divisa ad costam irregulari; prothorace nigro, lineis duabus transversis cæruleis notato, haud maculato.

Hab. PANAMA, Calobre (*Arcé*), Lion Hill (*McLeannan*).

We have two male specimens of this species, which appears to be quite distinct from its allies. It belongs to the section containing *J. zimra*, Hew., and *J. alburnia*, Mab., in which the discal spots are separate. In *J. zimra* these spots are much larger than in the present species, and on the underside the submarginal band of the secondaries is differently divided, a small piece only near the costa being separated instead of being split throughout. There are also essential differences in the male genitalia. *J. alburnia* has the submarginal band of the secondaries beneath entire.

The tegumen of the male genitalia has a long central lobe ending in a short hook, on either side is a well-defined, but much shorter, curved lobe with a ventral serrate edge; the harpagones end in a short slightly depressed lobe, above which is a longer one directed backwards, both having the end serrate. (See Tab. LXXIV. fig. 12.)

A male from Calobre, Panama, is figured.

4. *Jemadia patrobas*. (Tab. LXXIV. figg. 13, 14, 15 ♂.)

Pyrrhopyga vulcanus, Hew. Ex Butt. *Pyrrhopyga*, t. 1. f. 1¹.

Pyrrhopyga patrobas, Hew. loc. cit. text partim².

Alis cyaneo-nigris; anticis ciliis nigris, macula trifida per cellulam, una lineari discali et fascia arcuata quinque-partita ad apicem hyalinis, striis duabus transversis basalibus, duabus ad angulum analem margine interno subparallelibus et stria submarginali interrupta cærulescentibus; posticis stria irregulari prope marginem internum albicante, duabus cærulescentibus arcuatis transversis, una mediana, altera submarginali, ciliis inter venas albis: subtus ut supra, posticis stria submarginali magis arcuata et linea irregulari nigra longitudinaliter divisa; prothorace cæruleo transfasciato haud maculato.

Hab. PANAMA, Bugaba (*Champion*).—COLOMBIA¹.

We retain this name for Hewitson's figure of his *P. patrobas*, which is called on the plate *P. vulcanus* (Cr.)¹, but altered in the text to *P. patrobas*, though the description is evidently drawn from specimens of different species, as is evident from the statement that the number of apical hyaline spots is "four or five."

The differentiation of this species from *P. azeta* and other similar forms from external features only is by no means satisfactory, and the only character that seems available has reference to the way in which the outer band of the secondaries beneath is split up by a black line or lines. In *J. patrobas* this band is divided by a single line, but in *J. azeta* it is wider near the costa and is further split up by a second black line. The male genitalia of these forms show that they are perfectly distinct species.

Of *J. patrobas* we have only a single Central-American specimen, apparently a female, from the State of Panama. We have described a specimen from Colombia which agrees with the type of Hewitson's figure in the British Museum.

The tegumen of the male genitalia has a blunt slightly depressed central rod or lobe, at the base of which, on either side, is a short semi-erect lobe with a serrate end; the harpagones are elongated and end in a blunt point; there is a short lobe about the middle of the dorsal edge, which as well as the edge itself to the end is serrate; near

the base of the disc is a round patch of short spines or teeth. (See Tab. LXXIV. fig. 15.)

A male from Manaure, Northern Colombia, is figured.

5. **Jemadia azeta.** (Tab. LXXIV. figg. 16, 17 ♂.)

Pyrrhopyga azeta, Hew. Trans. Ent. Soc. ser. 3, ii. p. 479 (1866)¹.

J. patrobas affinis, fascia cærulea submarginali ad costam lineis duabus nigris divisa, genitalia maris quoque certe distinguenda.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*); PANAMA, David (*Champion*).—SOUTH AMERICA, Peru, Amazons valley¹, Bolivia, and South Brazil.

Hewitson's description of this species was based upon a specimen from S. Paolo, Upper Amazons, probably from Bates's collection. We have a good series of specimens agreeing with the type from various parts of Tropical America.

Dissected males from Guatemala, Panama, and Pebas in the Upper Amazons valley, all agree closely in the structure of their genitalia, which are so peculiar that their specific identity cannot be questioned.

J. azeta is not common in Guatemala, where we only found it in company with *J. hospita* in the Polochic valley, and we have only one specimen of Mr. Champion's collecting from David in the State of Panama. In South America the species appears to be more common; our series includes a specimen from Espirito Santo in Eastern Brazil and another from Chapada in Matto Grosso, the latter having formed part of Mr. Herbert Smith's collection.

The tegumen of the male genitalia is somewhat like that of *J. patrobas*, but the lobes at the base are wider at their origin, and the edges more deeply serrate; the harpagones are very peculiar, the ventral edge being very sinuate towards the end, which consists of a long depressed rod, the middle of the dorsal edge is deeply and irregularly serrate, and a serrate lobe is situated below the edge, on the disc is a short smooth edged lobe. (See Tab. LXXIV. fig. 17.)

A male from Northern Peru is figured.

6. **Jemadia licinus.**

Erycides licinus, Möschl. Verh. k.-k. zool.-bot. Ges. Wien, 1878, p. 209¹.

Pyrrhopyga dysoni, Plötz, Stett. ent. Zeit. 1879, p. 521².

Alis cyaneo-nigris; anticis ciliis nigris, striis cæruleis a basi radiantibus, ea ad marginem internum longissima, fere ad angulum analem extensa, linea interrupta submarginali quoque cyanea; macula magna trifida et puncto ad costam hyalinis, macula discali bifida, altera subapicali quoque bifida cum punctis tribus costalibus juxta eam omnibus hyalinis; posticis stria albicante ad marginem internum, aliisque duabus cæruleis a basi radiantibus, altera a costa cum stria submarginali indistincta conjuncta quoque cæruleis: subtus nigris, anticis maculis hyalinis ut supra, striis cæruleis fere obsoletis; posticis striis quatuor notatis, una ad marginem internum, proxima abbreviata subparallela a basi costæ, altera quoque a costa extendente et stria quarta submarginali ad medium conjuncta, omnibus nitide cæruleis; capite et prothorace

cæruleo albo punctatis; thorace longitudinaliter striato, abdomine stria dorsali nigra, lateribus cæruleo semicinctis, subtus lineis maculosis binotatis.

Hab. PANAMA, Chiriqui (*fide* Möschler¹).

We have a single specimen, apparently a female, answering to Möschler's description of this species. Unfortunately it is without locality, so that we cannot confirm the domicile attributed to the species by its describer, and, moreover, Dr. Staudinger's collection is silent on the subject.

J. licinus in the coloration of its wings is almost exactly like *Proteides pygmalion*, the blue lines radiating from the base of the primaries in the same way; but the head and antennæ are those of a *Jemadia*. We have examined our specimen very closely with a view to ascertain if the head with its antennæ had been placed on the body and wings of a specimen of *P. pygmalion*, but we cannot find that this has been done; and, of course, Möschler's description taken from another specimen confirms the opinion that the species is quite distinct.

Dissection of the male organs would here be very valuable, but unfortunately we have no materials at present to enable us to make the investigation.

MYSCELUS.

Myscelus, Hübner, Verz. bek. Schmett. p. 110 (1816); Watson, P. Z. S. 1893, p. 15.

This genus, the type of which is *M. nobilis* (Cramer), contains ten or eleven species, only two of which occur within our limits, the rest being spread over the tropical regions of South America as far as South Brazil.

The antennæ, including the club, are rather slender, the latter hooked and ending in a blunt point. The second median segment of the primaries is more than twice the length of the third, the subcostal branches are distinctly separate, the second subcostal segment is more than double the length of the third, and the third is longer than the fourth. In the secondaries the second median branch is emitted after the cell, and the outer margin is deeply crenulate. The hind tibiæ have a dorsal ridge of hairs.

1. *Myscelus belti*. (Tab. LXXIV. figg. 21, 22, 23 ♂.)

Myscelus belti, Godm. & Salv. P. Z. S. 1879, p. 153¹.

Alis ferrugineis; anticis ad apicem saturatioribus, maculis decem hyalinis omnibus nigro circumcinctis, tribus medianis magnis in linea transversa positis, duabus ultra cellulam, una venam medianam utrinque, quinque parvis subapicalibus in linea arcuata positis; posticis margine nigricante, ciliis inter venas indistincte albidis, fasciis duabus indistinctis fuscis, una per cellulam, altera ultra eam: subtus maculis ut supra dimidio distali fusco, linea indistincta pallida submarginali, parte basali sulphurea; posticis sulphureis, margine externo lato et linea juxta eam interiore nigricanti-fuscis; palpis albidis; corpore toto subtus sulphureo, abdomine nigro cincto.

♀ mari similis, anticis ad apicem obscurioribus, posticis saturatiore ferrugineis fere unicoloribus.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*¹), Pantaleon (*Champion*); NICARBIOL. CENTR.-AMER., Rhopal., Vol. II., May 1893.

AGUA, Chontales (*Belt & Janson*¹); COSTA RICA, Caché (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion & Ribbe*).

This fine species has a near ally in *M. epimachia*, as already pointed out in our original description; but the two insects have perfectly distinct ranges—*M. epimachia* being found in Peru and Bolivia, as well as in Southern Brazil; *M. belti* in Panama, thence northward to Guatemala.

Our type-specimen was obtained by the late E. M. Janson in Chontales, where Belt also found the species; but long previously to this we obtained a specimen in Guatemala, which remained undescribed in our collection, and where Mr. Champion also secured a specimen. Southward of Nicaragua it occurs sparingly.

The male genitalia have the tegumen with a single central point which is decurved towards the end; the harpagones are cleft horizontally, the lower portion projects beyond the upper, is more acute, and strongly serrate along the edge. (See Tab. LXXIV. fig. 23.)

We figure the type from Nicaragua.

Another species, more closely allied to *M. belti* than *M. epimachia*, occurs in Venezuela and Colombia; it has been described by Dr. Staudinger as *M. phoronis* var. *caucanus*, and by M. Mabilie as *M. persela* *. It is paler and redder in colour than *M. belti*, the apex of the primaries is not so dark, and the dark margin of the secondaries not so pronounced.

2. *Myscelus hages*, sp. n. (Tab. LXXIV. figg. 24, 25, 26 ♂.)

Alis fulvis; anticis venis nigris intersectis maculis novem hyalinis nigro cinctis, tribus medianis, tribus discalibus, et tribus subapicalibus; posticis macula cellulari semihyalina, margine externo venis juxta eum, et lunulis submarginalibus nigris, ciliis inter venas albicantibus; capite summo nigro transfasciato: subtus ochraceis, anticis maculis ut supra, margine externo nigricante, posticis margine externo et lineis maculosis transversis nigris notatis; palpis albidis, corpore subtus ochraceo-albo, abdomine nigro cincto.

♀ mari similis, maculis omnibus forsan distinctioribus.

Hab. MEXICO, Rinconada (*Schaus*), San Lorenzo near Cordova (*Trujillo*), Tierra Colorada in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*F. D. G. & O. S.*); PANAMA, David (*Champion*), Chiriqui (*Ribbe*), Lion Hill (*M. Leannan*).—PERU.

This insect, though of wide range, is probably nowhere common, a few specimens only having reached us from the localities mentioned above.

M. amystis, Hew., is a closely allied species, but of a much yellower colour, and with its markings more indistinct. It does not occur in our country, though found immediately to the south.

M. nobilis, on the other hand, of which there is a specimen in the British Museum, differs from the present species in having the markings on both surfaces much more

* *Myscelus phoronis*, var. *caucanus*, Staud. Ex. Tagf. p. 295 (1888).

Myscelus caucanus, Staud. op. cit. p. 311.

Pyrrhopyga persela, Mab. Bull. Soc. Ent. Belg. 1891, p. cvii.

strongly impressed, and in the yellow colour of the under surface being confined to the base of the wings, the outer portion being darker and more rufescent.

The genitalia of the male differ from those of *M. belti* in having the lower lobe of the harpagones less acute and not nearly so strongly serrate; they otherwise agree in their general outline.

AZONAX, gen. nov.

In this genus the club of the antennæ is comparatively slender as in *Myscelus*; the outer margin of the secondaries uniform, not dentated; primaries somewhat produced, the outer and inner margins subequal, the costa but slightly arched, upper discocellular distinct, fourth submedian branch emitted considerably beyond the end of the cell as in *Microceris*, subcostal branches widely apart, second and third median segments subequal; cell of the secondaries rather long, the second median branch emitted before the end of the cell. Hind legs wanting.

Type and only species *Myscelus typhaon*, Hew.

1. *Azonax typhaon*. (Tab. LXXIV. figg. 27, 28.)

Myscelus typhaon, Hew. Ann. & Mag. N. H. 1877, xx. p. 320¹; Kirby, Cat. Hew. Coll. p. 209².

Alis rufo-fuscis; anticis maculis undecim hyalinis notatis, una quinquepartita infra medium costæ (punctoque infra eam), una extra eam, una bifida ad costam, et quatuor ad apicem, maculis rufescentibus extra omnibus quoque ornatis; posticis macula ad basin albida, macula magna alba hyalina ante medium, altera ad marginem externum proprio fasciâ rufa pallida, infra eas maculis quinque notatis, duabus exterioribus hyalinis et maculis, alteris indistinctis brunneis limbatis: subtus ut supra, alis ad basin griseo-albis, margine externo saturate brunneo griseo-albo irrorato; posticis maculis pallidis flavidis ad medium costæ.

Hab. NICARAGUA (*Mus. Brit.*).

The only specimen of this peculiar species is the type now in the British Museum. In his original description Hewitson omitted to give the locality whence his specimen was derived¹; but it is labelled Nicaragua, as stated by Mr. Kirby in his catalogue of the Hewitson Collection². It probably originally formed part of Belt's collection.

OXYNETRA.

Oxynetra, Felder, Wien. ent. Mon. vi. p. 179 (1862); Watson, P. Z. S. 1893, p. 14.

Dis, Mabilie, Bull. Soc. Ent. Fr. (6) ix. p. clxxxiv (1889).

This genus was founded by Felder upon two specimens which he called *O. semihyalina*; these have since proved to belong to two separate species, which are now known as *O. semihyalina* and *O. felderi*; to these a third, *O. hopfferi*, has since been added. Of these, the last named is the only one which certainly occurs in our country, though *O. semihyalina* has been attributed to Mexico. *Dis annulatus* also belongs to this genus if it really differs from *O. hopfferi*.

The club of the antennæ is more pointed in this genus than in *Pyrrhopyge* or any of

the allied forms. The middle and lower discocellulars of the primaries are more nearly at right angles to the axis of the wing than in the other genera of this subfamily, the first, second, and third subcostal branches lie close together, the second and third submedian segments are subequal; the cell of the secondaries is very long, the median side being much longer than the costal side, the discocellular is convex towards the base, and meets the median at the origin of its second branch. The hind tibiæ have a dorsal ridge of hairs. On the upper surface the male has a small tuft of hairs near the base of the submedian nervure of the secondaries.

1. ***Oxynetra hopfferi*.** (Tab. LXXIV. fig. 18 ♂.)

Oxynetra hopfferi, Staud. Exot. Tagf. p. 294, t. 99¹.

Alis chalybeo-nigro; anticis fascia mediana lata semihyalina venis quadripartita a vena subcostali per cellulam usque ad venam submedianam extensa, posticis macula mediana bifida punctisque binis ultra eam semihyalinis: subtus ut supra, posticis saturatioribus maculisque duabus bene separatis, infra venam medianam glaucescentibus; capite nigro albo punctato, tegulis ad basin macula rufa notatis, abdomine rufo cincto, palpis et pectore albis, abdomine subtus albo punctato.

Hab. PANAMA, Chiriqui (*Ribbe*¹).

Dr. Staudinger has kindly lent us his unique type of this very distinct species, which, though evidently a typical *Oxynetra*, differs in many respects both from *O. semihyalina* and *O. felderi*. The large hyaline spot of the primaries, except for the nervures, is entire, and there is no subtriangular spot beyond it in the direction of the apex, a feature possessed by both the other species. The abdomen above is also distinctly banded with rufous, which is not the case in either *O. felderi* or *O. semihyalina*.

The genitalia of the male of *O. felderi* differ in many respects from those of any other member of this subfamily which we have examined. The tegumen is very short and terminates in two claw-like hooks, and there are no lateral lobes or spines; the scaphium is distinctly chitinized. The harpagones are complicated structures, having a strong terminal upturned, but not recurved, hook, from its dorsal edge a curved rod runs backwards and is suddenly bent into a hook; this inner hook falls within the disc of the each harpago. (See Tab. LXXIV. fig. 19.)

2. ***Oxynetra annulata*.** (Tab. LXXIV. fig. 20 ♀.)

Dis annulatus, Mab. Bull. Soc. Ent. Fr. sér. 6, ix. p. clxxxiv (1889)¹.

Alis nigricanti-fuscis unicoloribus, posticis ciliis ad angulum analem albo intermixtis: subtus ut supra, posticis viridi tinctis; corpore chalybeo-cyaneo, abdomine segmentis duobus proximis rufo notatis; capite nitide cyaneo albo punctato, punctis duabus ad basin antennarum, una inter eas et duabus post oculos; palpis, pectore et maculis abdominalibus albis.

Hab. PANAMA, Volcan de Chiriqui (*Trötsch, in mus. Staudinger*¹).

Dr. Staudinger has kindly lent us the type of this interesting species, the only one that has been hitherto obtained; it is apparently a female, and, having regard to this

surmise, we are inclined to believe that it may possibly prove to be the female of *Oxynetra hopfferi*.

In favour of this view we find that the two types agree accurately in the smallness of the head and eyes, in the position and colour of the spots on the head, and in the colour of the palpi, breast, and under portion of the abdomen. The rufous rings of the body are restricted to the basal segments, as in *Oxynetra felderi*. Against this supposition is the great difference in the coloration and shape of the wings, which have no diaphanous spots, and the secondaries are much more rounded, perhaps purely sexual characters. The thorax and abdomen are apparently more compressed, but this is perhaps due to the specimen having been crushed, and there is no rufous spot on the anterior portion of the tegulæ as in the other species.

The position of this insect can only be finally settled by the receipt of more specimens; in the meantime we have no hesitation in placing M. Mabille's genus *Dis* as a synonym of *Oxynetra* of Felder. The difference in the shape of the antennæ referred to by M. Mabille is of no consequence. The curvature is not symmetrical in the type nor in any of the specimens of *Oxynetra* before us.

Subfam. *HESPERIINÆ*.

Hesperiinæ, Watson, P. Z. S. 1893, pp. 9, 15.

In this subfamily Mr. Watson places all the species of Hesperiidæ in which the males have a costal fold to the primaries, all those in which the lower discocellular is longer than the middle discocellular, and those which extend their wings in life in one plane. There are exceptions to all these points, but where one of them fails one or more of the others indicate the true position of the genus. No species with a discal stigma belongs to this subfamily.

Mr. Watson further divides his Hesperiinæ into two sections, and defines them as follows:—

SECTION A.

Club of the antennæ usually bent into a hook, but sometimes sickle-shaped and always terminating in a fine point. The third joint of the palpi is either minute and almost buried in the long scales of the second joint or else directed forwards horizontally, but never curved backwards as in some *Pamphilinæ*. The cell of the primaries is always more than two-thirds of the length of the costa. The discocellulars are usually very oblique, the lower radial is nearly equidistant from the median and upper radial, but the middle discocellular is usually shorter than the lower, except when these two nervures make a very acute angle with the subcostal, and the cell is then abnormally long.

Nearly all the genera of this section belong exclusively to the New World, the large majority inhabiting Tropical America.

a. Hind tibiæ with two pairs of spurs (except in *Tarsoctenus* and *Casyapa*, which have peculiar antennæ).

a'. Terminal joint of the palpi minute.

EUDAMUS.

Eudamus, Swainson, Zool. Ill. ser. 2, ii. t. 48 (1831); Watson, P. Z. S. 1893, pp. 16, 20.

Polythrix, Watson, P. Z. S. 1893, pp. 16, 19.

The type of this genus is *Papilio proteus*, Linn., one of the commonest and most widely distributed of the Hesperiidæ in Tropical America.

The antennæ are bent to a hook just beyond the thickest part of the club, and then taper to a sharp point. The male usually has a costal fold, which, however, is absent in some species specified below; the cell of the primaries is very long, the discocellulars oblique, and there is a recurrent nervure from the median a little before the end of the cell; the second, third, and fourth segments of the subcostal are subequal; the second segment of the median is more than twice as long as the third; in the secondaries the submedian is produced to form a tail of varying length; the discocellular meets the median at the origin of the second branch.

E. zilpa and its immediate allies are aberrant, inasmuch as the cell of the primaries is very long and the discocellulars are not so oblique; the recurrent nervure starts from the median much nearer the origin of the second branch, and the discocellular of the secondaries meets the median beyond the second median branch.

Eudamus is a purely Neotropical genus, though one or two species pass into the southern limits of the Nearctic area. Mr. Watson says that forty species are represented in the British Museum, but this number must fall considerably short of the actual total. We recognize twenty-seven species as occurring within our limits; these are distributed over the whole area from our northern frontier southwards.

A. No pencils of hairs on any portion of the wings of the male, and no special sexual distinction on the wings other than a costal fold. (*Eudamus*.)

a. Transverse diaphanous band of the primaries either a nearly uniform continuous line or absent altogether; the spot (when present) between the median nervure and its second branch close to or absorbed in the band.

1. E. SIMPLICIUS section. Tail of secondaries long.

1. **Eudamus simplicius.** (Tab. LXXV. fig. 1 ♂.)

Papilio simplicius, Stoll, Suppl. Cram. Pap. Ex. p. 171, t. 39. ff. 6, 6 E¹.

Thymele simplicius, Scudder, Rep. Peab. Ac. Sc. iv. p. 68².

Goniurus simplicius, Plötz, Bull. Soc. Imp. Mosc. lv. No. 3, p. 2³.

Goniurus gracilicauda, Plötz, loc. cit.⁴.

Alis murinis fere unicoloribus; anticis fascia transversa plus minusve obsoleta, nonnunquam absente, a costa per cellulam transeunte semihyalina, maculis quoque subapicalibus (quatuor aut minus, interdum obsoletis) costam approximantibus, in linea recta positis, ejusdem coloris: subtus ut supra squamis sparsis ochraceis notatis, posticis fasciis duabus transversis fuscescentibus—una per cellulam, sæpe interrupta, altera discali integra, macula quoque basali ejusdem coloris; capite et corpore supra alis concoloribus, palpis albicantibus squamis fuscis intermixtis; plica costali obvia.

♀ mari similis, anticis magis obtusis fascia et maculis semihyalinis magis distinctis, plica costali nulla.

Hab. NORTH AMERICA, Texas and Arizona².—MEXICO, Sonora (*W. H. Edwards*²), Mazatlan (*Forrer*), Jalisco (*Schumann*), Sierra de Tepic in Jalisco (*W. B. Richardson*), Rincon, Tierra Colorada, Dos Arroyos, Rio Papagaio, Acaguizotla, and Acapulco in Guerrero, Cuernavaca (*H. H. Smith*), Jalapa and Coatepec (*W. Schaus*), Atoyac, Teapa (*H. H. S.*), Valladolid in Yucatan (*G. F. Gaumer*), Tehuantepec (*fide Scudder*²); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA (*fide Scudder*), Volcan de Santa Maria (*W. B. Richardson*), Pacific coast (*F. D. G. & O. S.*), Guatemala city, San Gerónimo, Panima (*G. C. Champion*); HONDURAS (*Dyson*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu, Caché (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Veraguas (*Arcé*), Lion Hill (*M. Leannan*), Colon (*A. H. Markham*).—SOUTH AMERICA generally, from Colombia to South Brazil and Paraguay.

Stoll's description and figure of this species were based upon a specimen from Surinam¹. We have several examples from the adjoining country of British Guiana agreeing with the figure, and have no hesitation in applying Stoll's name to them. A large series from all parts of Tropical America in our possession proves that the species has a very wide range, extending uninterruptedly from the borders of the United States to South Brazil and Paraguay. On the whole there is little individual variation to be traced, and this concerns chiefly the transverse hyaline band of the primaries and the subapical spots. In some examples these are fairly well shown, but in others they are obsolete, and can scarcely be seen. In the female this band seems to be always more apparent.

The male in *E. simplicius* has a costal fold to the primaries, and this is a character separating it at once from that sex of *E. eurycles* whatever the definition of the transverse band of the former may be. Females of the two species can usually be distinguished by the outer margin of the secondaries in *E. simplicius* being more rounded and forming an angle rather than a curve where the tail commences.

In their male genitalia these two species present no differences. The tegumen bifurcates into two well-defined points; the extremity of the harpagones is rounded, and has a spine pointing backwards and overhanging the dorsal fissure; the scaphium is well developed. (See Tab. LXXV. fig. 1.)

2. *Eudamus eurycles*.

Urbanus fortis dorantes, Hübn. Samml. ex. Schm. i. t. 154. ff. 1, 3 (nec *P. dorantes*, Stoll)¹.

Hesperia eurycles, Latr. Enc. Méth. ix. p. 730².

Goniurus eurycles, Plötz, Bull. Soc. Imp. Mosc. ix. No. 3, p. 3³.

Goniuris eurycles, Snellen, Tijdschr. v. Ent. xxx. p. 27, t. 2. ff. 2, 2 a⁴.

Thymeles sumichrasti, Scudder, Rep. Peab. Ac. Sc. iv. p. 69⁵.

Goniurus simplicius, Butl. & Druce, P. Z. S. 1874, p. 366⁶ (nec Stoll).

Alis murinis, ciliis pallidioribus; anticis fascia transversa angusta a costa per cellulam ultra ramum medianum primum extendente semihyalina, maculis subapicalibus quatuor aut quinque linea fere recta formante costam vix attingente ejusdem coloris; posticis medialiter pallidioribus cauda saturatiore: subtus anticis ut supra, posticis squamis sparsis ochraceo-albis notatis, fasciis duabus irregularibus haud costam attingentibus, interiore per cellulam plerumque interrupta, exteriori discali plerumque integra nigricantibus, macula quoque basali coloris ejusdem; capite et corpore supra alis concoloribus, palpis griseis squamis murinis notatis; plica costali nulla.

♀ mari similis, alis anticis forsitan magis obtusis.

Hab. MEXICO, Mazatlan (*Forrer*), Sierra Madre de Tepic (*W. B. Richardson*), Hacienda de la Imagen, Rincon, Venta de Zopilote and Acaguizotla, all in Guerrero (*H. H. Smith*), Cuesta de Misantla, Jalapa (*M. Trujillo*), Jalapa, Coatepec (*Schaus*), Orizaba (*H. J. Elwes*), Atoyac and Teapa (*H. H. Smith*), Tehuantepec (*Sumichrast*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA, Zapote (*Champion*), Pacific coast, Motagua Valley, San Gerónimo (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Caché (*Rogers*); PANAMA, Veraguas (*Arcé*), Lion Hill (*M^cLeannan*). —SOUTH AMERICA generally, from Colombia to the Argentine Republic.

Latreille's name for this species was based upon Brazilian specimens obtained by Langsdorff². Both *Papilo simplicius* and *P. dorantes* of Stoll were included as synonyms, though the detailed description applies only to the present insect as figured by Hübner as the male of *P. dorantes*¹. Later writers have usually considered Latreille's title to be a synonym of Stoll's *P. simplicius*; but this view is quite untenable, for not only is the male of the present species destitute of the costal fold on the primaries, but the secondaries have the outer margin less curved, and the transverse hyaline band of the primaries (though a variable character) is always more clearly defined. Of the other names quoted above, *T. sumichrasti* of Scudder⁵ seems to be certainly referable to *E. eurycles*; and *G. simplicius* of Butler and Druce⁶ also belongs here from the evidence of the specimens before us.

The most characteristic figure of this species is that of Heer Snellen, accompanying his paper on the Lepidoptera of Curaçoa⁴.

As will be seen from our list of localities, this species has an exceedingly wide range over the whole of Tropical America. It is a common insect in Southern Mexico on both sides of the Cordillera from the sea-level up to an elevation of 4000 or 5000 feet.

The male genitalia are almost exactly like those of *E. simplicius*, so that absence of

the costal fold is the most trustworthy character to distinguish *E. eurycles* from that species.

b. Transverse diaphanous band of the primaries composed of more or less isolated spots; the spot between the median nervure and its second branch placed at a distance from the rest.

a'. The spot between the median nervure of the primaries and its second branch narrow (or absent, as well as the band itself, as in *E. chales*).

a''. No transverse white band on the secondaries beneath.

a'''. Tails short or truncate.

2. *E. DORYSSUS* section.

3. *Eudamus doryssus*.

Papilio orion, Drury, Ill. Ex. Ent. iii. p. 20, t. 17. ff. 3, 4 (nec Cramer) ¹.

Eudamus doryssus, Swains. Zool. Ill. ser. 2, ii. t. 48. f. 2 (1831) ².

Goniurus doryssus, Plötz, Bull. Soc. Imp. Mosc. lv. No. 3, p. 16 ³.

Goniurus brachius, Geyer in Hübn. Zutr. ex. Schm. iv. p. 8, ff. 609, 610 (1832) ⁴.

Goniurus nivosus, Plötz, Bull. Soc. Imp. Mosc. lv. No. 3, p. 17? ⁵.

Alis nigricanti-brunneis; anticis fascia transversa angusta, fere recta, venis quadripartita et macula ultra eam elongata semihyalinis, punctis tribus aut quatuor subapicalibus ad costam ejusdem coloris; posticis brevicaudatis, cauda et margine externo juxta eam (margine suo interno valde irregulari) cum ciliis pro majore parte albis: subtus ut supra, posticis saturatioribus, margine externo fere toto albo (limbo suo interno magis regulari), linea angusta ad angulum apicalem nigricante interrupta; palpis fuscis, griseo intermixtis; plica costali obvia.

♀ mari similis, plica costali nulla.

Hab. MEXICO, Atoyac (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Pacific coast, San Gerónimo (*F. D. G. & O. S.*), Panima (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*mus. Staudinger*).—SOUTH AMERICA generally to South Brazil.

The descriptions and figures of Drury ¹, Swainson ², and Geyer ⁴ all apply to this species as distinguished from *E. albimargo* and *E. nigricauda*, the inner edge of the white border of the secondaries being very irregular on the upperside. In other respects all these three forms are very much alike, *E. chales* differing from them all in having no hyaline spots on the primaries.

The range of *E. doryssus* is very extended, and though only found sparingly in the Mexican State of Vera Cruz it spreads thence over the whole of Central America, and over South America as far as South Brazil. In altitude it reaches an elevation of 3000 or 4000 feet above sea-level.

The tegumen of the male genitalia is cleft vertically, and the scaphium well developed. The end of the harpagones is obtuse, and the upper angle terminates in a

prominence, the inner angle of which is slightly produced : this projection forms the outer edge of the dorsal fissure.

4. *Eudamus albimargo*.

Thymeles albimargo, Mab. Bull. Soc. Ent. Fr. 1875, p. ccxiii ¹.

Goniurus albimargo, Mab. & Vuill. Nov. Lep. p. 37, t. 5. f. 2 (1891) ².

E. dorysso persimilis, sed margine posticarum albo multo angustiore, limbo suo interno haud irregulari, colore fusco alarum ad basin caudæ intrante.

Hab. GUATEMALA, Yzabal, Polochic Valley (*F. D. G. & O. S.*); PANAMA (*fide Mabilles* ¹), Chiriqui, Veraguas (*Arcé*).—SOUTH AMERICA, from Colombia to Brazil ^{1 2}; JAMAICA.

This species was separated from *E. dorysso* in 1875 by Mons. Mabilles, his description being based upon a specimen stated, with doubt, to have come from Panama. In their illustrated work the species is ascribed to Brazil. According to our determination both places are within the range of the species, which extends sparingly from Guatemala to Brazil, and we possess specimens from a few localities scattered over this wide area.

The differences between *E. albimargo* and *E. dorysso* are slight but fairly constant, and the two forms, for the present at least, had best be kept separate.

5. *Eudamus chales*, sp. n. (Tab. LXXV. figg. 2, 3.)

E. dorysso proximus, sed alis anticis fere immaculatis, puncto costali ad apicem hyalino tantum notatis, posticis fere ut in *E. dorysso*: subtus (margine posticarum externo albo excepto) immaculatis fuliginoso-nigris.

Hab. MEXICO, Acapulco (*H. H. Smith*).

We have two male specimens of this species, which, though allied to *E. dorysso*, differ in having immaculate primaries, the median diaphanous band being wholly absent, and the subapical spots near the costa reduced to one or two obsolete points. In the interior outline of the white margin of the secondaries, *E. chales* resembles *E. dorysso* rather than *E. albimargo*; the tail is much shorter though pure white.

6. *Eudamus nigricauda*.

Goniurus nigricauda, Mab.

Alis murinis, anticis fascia transversa angusta fere ut in *E. albimargine*, punctis quinque subapicalibus in linea recta positis; posticis immaculatis, cauda concolore, ciliis a margine externo medio ad angulum apicalem albido: subtus ut supra, posticis saturatoribus fasciis valde indistinctis nigris notatis, margine externo ad angulum apicalem cum ciliis attingente albis, ciliis ad caudam et angulum analem omnino fuscis; plica costali obvia.

♀ mari similis, plica costali nulla.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*), Panama (*Ribbe, in mus. Staudinger*).—COLOMBIA.

Dr. Staudinger has kindly lent us two specimens, a male and a female, of this species, the former from Chiriqui, bearing the name of M. Mabilie.

The male has no trace of the spot between the median nervure and its second branch, and it is only very faintly shown in the female. In a specimen from Santa Marta, Colombia, in our collection, this spot is more plainly visible, and it is still more clearly shown in *E. carmelita*, to which species *E. nigricauda* is most nearly allied. From *E. carmelita* it may be distinguished by having five subapical spots placed in a straight line and forming a band parallel to the median band. In *E. carmelita* there are only four such spots, and they do not lie in a line.

3. *E. CARMELITA* section.

7. *Eudamus cenis*.

Eudamus cenis, Herr.-Schäff. Prodr. iii. p. 67 (1868) ¹.

Goniuris cenis, Butl. Trans. Ent. Soc. 1870, p. 493 ².

Goniurus cenis, Butl. Lep. Ex. p. 65, t. 25. f. 5 ³.

Alis murinis, anticis stria mediana transversa semihyalina, macula ultra eam et punctis tribus subapicalibus quoque semihyalinis; posticis linea discali undulata obsoleta fusca: subtus anticis ut supra, maculis omnibus fusco cinctis; posticis fasciis tribus irregularibus et macula basali fuscis, ciliis fusco-albidis; cauda brevi; plica costali obvia.

Hab. PANAMA, David (*Champion*).—COLOMBIA; VENEZUELA ^{2 3}.

A single specimen taken by Mr. Champion agrees with others in our collection from Colombia and Venezuela, and with Mr. Butler's types of *G. cenis*. The latter came from Dr. Kaden's collection with the name *cenis* attached to them, and were doubtless seen by Herrich-Schäffer.

In the markings of the underside of the secondaries this species resembles *E. athesis*, Hew., and *E. trebia*, Möschl., and are of the same character as those of *E. dorantes*. The tails are quite short and the markings of the primaries quite different from those of the last-named species.

b'''. Tails longer.

4. *E. CHALCO* section.

8. *Eudamus chalco*. (Tab. LXXV. fig. 4 ♂.)

Goniurus chalco, Hübn. Zutr. ex. Schm. ii. p. 22, ff. 313, 314 (1823).

Eudamus agesilaus, Swains. Zool. Ill. ser. 2, ii. t. 48. f. 1.

Alis saturate murinis; capite, thorace et alis ad basin nitente viridibus; anticis fascia mediana lata per cellulam venis quadripartita, macula subquadrata vix ultra eam et punctis tribus subcostalibus semihyalinis; posticis cauda et margine externo lato fere ad angulum apicalem pure albis: subtus pallidioribus, fascia anticarum integra; posticis margine externo ad costam albo, macula fusca ad angulum apicalem, fascia per cellulam indistincta fusca; plica costali obvia; palpis, oculorum ambitu infra et pectore albis.

♀ mari similis, sed plica costali nulla.

Hab. PANAMA, Calobre (*Arcé*), David (*Champion*), Chiriqui (*Trötsch, in mus. Staudinger*).—COLOMBIA; LOWER AMAZONS; BRAZIL and ARGENTINE REPUBLIC.

A wide-ranging species in South America, originally described from Brazil, and now known to occur in the Argentine Republic, throughout the Valley of the Amazons, and in Colombia. In our country it has not been traced beyond the limits of the State of Panama. In its white tails it resembles *E. doryssus*, but they are longer, and with the green head, body, and base of the wings at once distinguish it from that species.

The male genitalia are very like those of *E. proteus*; the tegumen is cleft vertically; the harpagones have a slight median dorsal depression, on the distal side of which is a small thickened prominence, beyond which again the harpe is drawn to a blunt point. (See Tab. LXXV. fig. 4.)

b'. An ill-defined white transverse band on the secondaries beneath.

5. *E. METOPHIS* section.

9. *Eudamus metophis*.

Hesperia metophis, Latr. Enc. Méth. ix. p. 729¹.

Eudamus metophis, Boisd. Sp. Gén. i. t. 13. f. 5².

Alis murinis, ad basin leviter viridi-cæruleo lavatis, ciliis sordide albis; anticis maculis quinque in linea transversa positæ, duabus parvis costalibus, una per cellulam, tertia maxima subquadrata inter ramos medianos, quinta infra eam macula, altera angusta magis ad apicem inter venam medianam et ramum suum secundum semihyalinis, punctis quatuor subcostalibus ad apicem linea valde obliqua formante coloris ejusdem: subtus anticis maculis hyalinis ut supra, linea hamata margini externo plus minusve parallela purpureo-brunnea, plaga pallida inter eam et marginem externum; posticis linea albida a costa ad caudæ basin introrsum bene definita, extrorsum evanescente; plica costali obvia.

Hab. MEXICO, Rinconada (*Schaus*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*).—SOUTH AMERICA, Venezuela to Brazil¹.

Latreille's description of this species was based upon a specimen sent him from Brazil by Langsdorff¹, and we have several examples from that country, including some collected by Mr. H. H. Smith at Chapada in Matto Grosso. These agree with the only specimens we have seen from our country, all of them from Mexico. The most characteristic feature of the species is the white line on the underside of the secondaries, which is sharply defined on the inside, but is gradually shaded off on the outer side.

The male genitalia are almost exactly like those of *E. chalco*.

b'. The spot between the median nervure and its second branch large and subquadrate.

c''. Tails long.

c'''. Secondaries without any white patch beneath, and without a distinct dark subtriangular spot near the apex of the primaries.

6. *E. PROTEUS* section. (Typical.)

10. ***Eudamus proteus***. (Tab. LXXV. fig. 5 ♂.)

Papilio proteus, Linn. Mus. Ulr. p. 333¹; Syst. Nat. i. p. 794²; Clerck, Icon. Ins. t. 42. f. 1³.

Urbanus fortis proteus, Hübn. Samml. ex. Schm. i. t. 155⁴.

Goniurus proteus, Butl. & Druce, P. Z. S. 1874, p. 366⁵; Plötz, Bull. Soc. Imp. Mosc. lv. No. 3. p. 11⁶.

Eudamus proteus, Scudder, Butt. New Engl. ii. p. 1386⁷.

Alis murinis ad basin viridibus aureo nitentibus, ciliis albidis fusco interruptis; anticis maculis quatuor in linea transversa positae, quinta ultra eas subquadrata et punctis tribus ad apicem semihyalinis: subtus pallidioribus, squamis ochraceis sparsim notatis; anticis fusco nebulosis, posticis lineis duabus fuscis transversis interiore per cellulam ad costam nonnunquam disrupta, nonnunquam integra, exteriori integra; plica costali obvia.

Var. *a*. Fascia transversa interna posticarum subtus ad costam disrupta. (*E. proteus* forma typica.)

Hab. NORTH AMERICA, Southern States⁷.—MEXICO, Mazatlan, Milpas (*Forrer*), Lake Chapala and State of Jalisco (*Richardson*), Xucumanatlan, Rincon, Acaguizotla, Dos Arroyos, Omilteme, all in Guerrero (*H. H. Smith*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*), Jalapa (*Trujillo*), Coatepec and Paso de San Juan (*Schaus*), Atoyac (*H. H. Smith*); GUATEMALA, San Gerónimo (*F. D. G. & O. S., Champion*), Dueñas, Zapote (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*van Patten*⁵), San Francisco, Caché (*Rogers*); PANAMA, Chiriqui and Calobre (*Arcé*), Lion Hill (*McLeannan*).—SOUTH AMERICA generally to the Argentine Republic; ANTILLES.

Var. *b*. Fascia transversa interna posticarum subtus lata ad costam integra.

Hab. MEXICO, Mazatlan (*Forrer*), Venta de Zopilote in Guerrero (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Orizaba (*H. J. Elwes*); GUATEMALA, Chisoy and Polochic Valleys (*F. D. G. & O. S.*), San Gerónimo, Dueñas, Zapote (*Champion*); HONDURAS San Pedro (*G. M. Whitely*); COSTA RICA (*van Patten*), Irazu, Caché (*Rogers*).—SOUTH AMERICA to Peru.

Apart from *E. esmeraldus*, which is examined below, *E. proteus* presents itself in two forms almost wherever it is found. In one, the typical form, the inner of the two dark bands of the secondaries beneath is split up near the costa into two isolated spots, which lie just below the costal nervure. In the other this band is entire and widens out on reaching the costal nervure, and at most shows a small cleft along its costal border. This difference is not sexual, as we have males of both forms. As these present no difference in their male genitalia, we do not think they can belong to different species.

E. proteus is one of the commonest of the Hesperiidæ in Tropical America, and is

found nearly everywhere in the more open country, from the sea-level to a height of at least 5000 feet above it.

The male genitalia have an elongated tegumen, which is cleft vertically and ends in two slightly depressed blunt points; the scaphium is well developed and also long; the harpagones terminate in a blunt point, and there is a notch or fissure on the dorsal edge. (See Tab. LXXV. fig. 5.)

11. **Eudamus esmeraldus.** (Tab. LXXV. fig. 6 ♂.)

Goniurus esmeraldus, Butl. Trans. Ent. Soc. 1877, p. 146¹.

E. proteo similis, sed posticis subtus fasciis obscuris multo magis distincte impressis, maculis basalibus extrorsum albido marginatis, fascia quoque discali ad angulum analem extrorsum albido limbata, genitalia maris quoque differt.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo, Zapote (*Champion*); HONDURAS, Ruatan I. (*G. F. Gaumer*); COSTA RICA, Caché (*Rogers*); PANAMA, Bugaba (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA generally from Colombia to the Amazons Valley¹ and South Brazil.

This species is very like *E. proteus* in its typical form, where the interior of the two dark bands of the secondaries beneath is split up into spots near the costa. It may, however, be usually distinguished by the basal spots of this band and that part of the outer band near the anal angle being edged on the outside with a whitish border. This character would hardly justify its separation from *E. proteus* were it not supported by a difference in the male genitalia, a very distinct truncate lobe arising from the dorsal edge of the harpes just beyond the fissure (see Tab. LXXV. fig. 6). We have examined several specimens and find this a constant feature.

E. esmeraldus was described by Mr. Butler from a specimen captured by Mr. Trail at Villa Bella, on the Amazons, on April 15, 1874¹. We now trace the species over a wide area, which it occupies in common with *E. proteus*.

12. **Eudamus dorantes.** (Tab. LXXV. fig. 7 ♂.)

Papilio dorantes, Stoll, Suppl. Cram. Pap. Ex. p. 172, t. 39. f. 9¹.

Goniurus dorantes, Plötz, Bull. Soc. Imp. Mosc. lv. No. 3, p. 10².

Eudamus protillus, Herr.-Sch. Prodr. p. 63³.

Eudamus amisus, Hew. Descr. Hesp. p. 5⁴; Ex. Butt., Eudamus, ii. f. 10⁵.

E. proteo similis, sed supra alis omnino murinis haud viridi lavatis, posticis margine externo magis rotundato: subtus posticis squamis purpureo-albis notatis fere ut in *E. proteo* bifasciatis, macula altera ad basin subcostali nigricante; plica costali obvia.

♀ mari similis, sed plica costali nulla.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ciudad in Durango, Mazatlan (*Forrer*), Jalisco (*Schumann*), Sierra Madre, Tepic, Lake Chapala (*Richardson*), Cuernavaca in Morelos, La Venta, Acapulco, Venta de Zopilote, Tierra Colorada,

Rincon, and Dos Arroyos in Guerrero (*H. H. Smith*), Misantla (*F. D. G.*), Cordova (*Höge*), Orizaba (*H. J. Elwes*), Jalapa, Coatepec, Rinconada (*Schaus*), Atoyac (*Schumann*, *H. H. Smith*), Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*), Belize (*Blancaneaux*); GUATEMALA, Zapote (*Champion*), Motagua, Polochic, Chisoy, and Central Valleys (*F. D. G. & O. S.*); HONDURAS, Ruatan Island (*Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Caché (*Rogers*); PANAMA, Calobre (*Arcé*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA to the Argentine Republic.

An equally wide-ranging species with *E. proteus*, in company with which it is found from Northern Mexico to the Argentine Republic, though in the West-Indian islands it is represented by *E. santiago*, a slightly different species. Its vertical range in the tropics extends from the sea-level to about 5000 feet.

The male genitalia resemble those of *E. proteus*, but there is a spine overhanging the dorsal fissure. (See Tab. LXXV. fig. 7.)

d'''. Secondaries with a more or less obvious white discal patch or stripe.

7. *E. ZILPA* section. A dark subtriangular spot near the apex of the primaries.

13. *Eudamus zilpa*. (Tab. LXXV. fig. 8 ♂.)

Goniurus zilpa, Butl. Lep. Ex. p. 109, t. 40. f. 2¹; Butl. & Druce, P. Z. S. 1874, p. 366².

Alis rufescenti-murinis, ad basin pallidioribus, ciliis pallide fuscis; anticis maculis quinque medianis quatuor linea transversa formantibus, quinta exteriori flavo-hyalinis, punctis tribus costalibus ad apicem coloris ejusdem: subtus fuscis; anticis ad apicem squamis cinereis notatis et lineis ferrugineo-fuscis irregulariter ornatis, macula subtriangulari ad apicem hujus coloris; posticis maculis magnis albido cinetis in dimidio basali quoque ferrugineo-fuscis, plaga magna irregulari discali alba introrsum fusco irrorata et maculis magnis interrupta; plica costali obvia.

♀ mari similis, plica costali nulla.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas (*Forrer*), Acapulco, Dos Arroyos (*H. H. Smith*), Cordova (*Rümeli*), Jalapa, Coatepec, Rinconada (*Schaus*), Atoyac (*Schumann*), Oaxaca (*Fenochio*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Polochic Valley, Pacific Coast (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*^{1 2}); PANAMA, Bugaba (*Champion*), Chiriqui, Calobre (*Arcé*).

Mr. Butler described this species from specimens from Costa Rica¹, and we have now traced it southwards into the State of Panama, and northwards through Guatemala to Northern Mexico; its range in altitude extending from the sea-level to a height of 4000 feet. Its relationship is clearly with *E. catillus*, from which it differs chiefly in the shape of the white mark on the secondaries beneath, an obvious feature replaced in the allied species by an indistinct dusky patch extending to the costa of the wing.

The male genitalia have a comparatively short tegumen cleft vertically at the end,

the harpes are produced, ending in a blunt upturned point, the dorsal edge beyond the fissure is concave and finely serrate to the end. (See Tab. LXXV. fig. 8.)

14. **Eudamus catillus.** (Tab. LXXV. figg. 9, 10 ♂.)

Papilio catillus, Cram. Pap. Ex. t. 260. ff. F, G¹.

Goniurus catillus, Plötz, Bull. Soc. Imp. Mosc. lv. No. 3, p. 13².

Telegonus tarchon, Hübn. Samml. ex. Schmett. ii. t. 145³.

Papilio longicauda, Sepp, Pap. Surinam, ii. t. 90⁴.

E. zilpæ affinis, sed posticis subtus maculis magnis ferrugineo-fuscis indistinctis, plaga alba fuscescentiore angustiore fere ad costam extendente distinguendus; plica costali obvia.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA from Colombia to Brazil and Paraguay.

We follow other writers in considering the names *P. catillus*, Cramer, and *T. tarchon*, Hübner, to refer to the same species, but Cramer's figure compared with that of Hübner's is far from satisfactory.

Our only authority for including the species within our fauna is a specimen in Dr. Staudinger's collection from Chiriqui, where the species appears to be found in company with *E. zilpæ*. This Chiriqui example and others we possess from Northern Colombia differ slightly from the typical Guiana form; the light band on the primaries beneath is paler and straighter, but this difference cannot be considered of specific value.

The range of *E. catillus*, as will be seen above, is very extensive, embracing nearly the whole of South America.

The male genitalia differ considerably from those of *E. zilpæ*, the harpagones are much less produced and end in a sharp recurved spine, the dorsal fissure is shallow, and the dorsal edge is not serrate beyond it. (See Tab. LXXV. fig. 10.)

15. **Eudamus albofasciatus.** (Tab. LXXV. fig. 11.)

Eudamus albofasciatus, Hew. Descr. Hesp. p. 3¹; Ex. Butt., Eudamus, ii. f. 15².

Goniurus albofasciatus, Butl. & Druce, P. Z. S. 1874, p. 366³.

E. zilpæ similis, sed anticis macula mediana costali vix ulla, punctis subapicalibus in linea magis obliqua positis: subtus posticis linea mediana alba distincta recta a costæ medio ad caudæ basin ducta introrsum nigro limbata; plica costali obvia.

♀ mari similis, plica costali nulla.

Hab. MEXICO (*Deppe*), Lake Chapala, San Blas (*Richardson*), Jalisco (*Schumann*), Acapulco, Hacienda de la Imagen, Dos Arroyos, and Rincon, in Guerrero (*H. H. Smith*), Jalapa, Coatepec, Paso de San Juan (*Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Yucatan (*mus. Staudinger*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic and Chisoy Valleys (*F. D. G. & O. S.*), San Gerónimo (*Champion, F. D. G. & O. S.*); HONDURAS (*mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*).

Though Hewitson described ¹ this well-marked species from specimens obtained by us in Guatemala, it had long been represented in the Berlin Museum by examples procured by Deppe in Southern Mexico. In the latter country we now know it to be common in the lowlands bordering both oceans, and ascending the mountains to a height of 4000 feet.

In Guatemala it occurs under similar circumstances. The most southern point of its range appears to be Costa Rica, where Van Patten found it.

The well-defined straight snow-white band on the underside of the secondaries renders this species easy of recognition.

In Mr. Schaus's collection there is a specimen taken at Coatepec in which the primaries are wholly without the usual diaphanous spots.

The male genitalia of this species differ both from those of *E. zilpa* and *E. catillus*. The harpagones terminate in an upturned truncate lobe, ending in diverging spines—one directed outwards, the other inwards. (See Tab. LXXV. fig. 11.)

8. *E. alcæus* section. No dark subtriangular spot near the apex of the primaries.

16. **Eudamus alcæus.** (Tab. LXXV. fig. 12 ♂.)

Eudamus alcæus, Hew. Descr. Hesp. p. 3¹; Ex. Butt., Eudamus, ii. f. 9².

Goniurus alcæus?, Butl. & Druce, P. Z. S. 1874, p. 366³.

Alis brunneis ad basin ochraceis, cillis albidis fusco interruptis; anticis maculis sex notatis, una (duplici) costali, tribus juxta eam in linea transversa positis, quinta ultra eas et sexta magis ad apicem supra venam medianam flavo-hyalinis, punctis duobus aut tribus costalibus ad apicem et una ultra eos coloris ejusdem: subtus fuscis purpureo tinctis et nebulosis, anticis maculatis ut in pagina superiore, posticis fasciis tribus plus minusve margini externo parallelibus, venis trisectis saturate purpureo-brunneis; plaga magna subovali margini externo subparalleli prope caudæ basin alba; palpis albis; abdomine albo regulariter cincto; plaga costali nulla.

♀ mari similis.

Hab. MEXICO, Rinconada (*Schaus*), Atoyac (*H. H. Smith*), Cordova (*Rimeli*); GUATEMALA, Polochic valley, Pacific coast (*F. D. G. & O. S.*); NICARAGUA (*mus. Hewitson*); COSTA RICA (*Van Patten*³); PANAMA, Calobre, Chiriqui (*Arcé*).—ECUADOR.

Described by Hewitson from a Nicaraguan specimen, and now known to be generally distributed over a large portion of Central America from Southern Mexico to Panama. There is a specimen in the Hewitson collection said to have come from Ecuador.

This species has no near allies that we are acquainted with, the position of the white discal patch near the base of the tails on the underside of the secondaries and the arrangement of the hyaline spots of the primaries render it easy of recognition.

E. alcæus is a species of the lowlands, and is probably limited in its range to an altitude of 2000 feet and under.

The male genitalia have the harpagones very truncate, an upturned spine proceeds from the further edge of the dorsal fissure, beyond which the harpagones terminate in a slightly concave, almost perpendicular, edge. (See Tab. LXXV. fig. 12.)

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d''. Tails short, truncate.

9. *E. RIDENS* section.

17. ***Eudamus ridens***. (Tab. LXXV. figg. 13, 14, 15 ♂.)

Eudamus ridens, Hew. Ann. Mag. Nat. Hist. ser. 4, xviii. p. 349¹.

Alis purpureo-fuscis; anticis plaga magna centrali quinquepartita fascia arcuata subapicali sexpartita hyalinis; posticis obscurioribus, macula mediana bipartita, plaga elongata cirrosa marginem internum versus et ciliis albis: subtus anticis ut supra, posticis plaga mediana alba magis elongata, punctis nigricantibus duobus includente; palpis et oculorum ambitu infra albis; plica costali obvia.

Hab. PANAMA, Chiriqui (*Ribbe*¹).

A beautiful species, the only specimens of which have been taken by Dr. Staudinger's collectors. It has no very near ally; the white median band on the upperside of the secondaries is peculiar to the species.

The male genitalia have a spine on the distal side of the dorsal fissure of the harpagones slightly leaning backwards, a shallow depression beyond it, and then some sharp points on the bend of the rounded end. (See Tab. LXXV. fig. 15.)

18. ***Eudamus miltas***, sp. n. (Tab. LXXV. figg. 18, 19.)

Alis murinis ad basin viridi-ochraceo leviter lavatis; anticis fascia lata mediana venis quinquepartita, quarum tertia a costa maxima, ea juxta eam extrorsum parva, punctis quatuor subapicalibus omnibus semihyalinis; posticis brevicaudatis, ciliis albis: subtus anticis ut supra, area interna ad angulum analem albida; posticis maculis sex indistinctis fuscis in linea arcuata costæ et margini externo subparallelibus, macula altera ad cellulæ finem quoque fusca, macula elongata albida prope caudæ basin.

Hab. MEXICO, Jalapa (*Schaus*).

A single specimen of this distinct species in Mr. Schaus's collection is the only one we have seen. Without actual dissection its position must remain somewhat uncertain, but from external characteristics it seems best placed here, though it has some characters suggestive of a relationship to *E. auginus*.

19. ***Eudamus crison***, sp. n. (Tab. LXXV. figg. 16, 17.)

Alis viridi-nigricantibus; anticis fascia lata transversa venis quinquepartita a costæ medium ad angulum analem transeunte hyalina undique nigro limbata, maculis tribus margini externo subparallelibus et quatuor elongatis subapicalibus quoque hyalinis; posticis saturatioribus, fasciis duabus indistinctis maculosis, una ad cellulæ finem altera discali viridibus: subtus anticis fere ut supra; posticis fasciis viridibus magis distinctis et ad angulum analem confluentibus; palpis griseis.

Hab. GUATEMALA, Cerro Zunil (*Champion*).

A single specimen, somewhat damaged as regards the anal angle of the secondaries, apparently a female, is all that we have seen of this beautiful species. It was captured by Mr. Champion on the slopes of Cerro Zunil at an altitude of about 4000 feet above the sea.

c. The median diaphanous spots of the primaries gathered into a more or less contiguous group.

10. *E. ASINE* section. No white patch on the middle of the secondaries beneath.

20. *Eudamus asine*.

Eudamus asine, Hew. Descr. Hesp. p. 5¹.

Alis murinis; anticis maculis quatuor medianis, una costali parva, altera in cellula et duabus infra eam, punctis quatuor subapicalibus in linea fere recta positis, hyalinis, maculis tribus nigris infra ramum medianum primum duabus approximantibus, tertia basin propiore; posticis fasciis indistinctis, duabus maculosis, una discali altera cellulari; ciliis sordide albis: subtus ut supra, area interna anticarum pallida; plica costali obvia.

Hab. MEXICO, Presidio de Mazatlan, Tres Marias Islands (*Forrer*), Jalisco (*Schumann*), Dos Arroyos, Venta de Zopilote, Acapulco, Atoyac (*H. H. Smith*), Paso de San Juan (*Schaus*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Polochic and Motagua valleys (*F. D. G. & O. S.*); NICARAGUA¹; COSTA RICA, Caché, Irazu (*Rogers*).

Hewitson's type of this species came from Nicaragua, but whether from Belt's collection or not we are not informed. We have many examples of both sexes from Mexico, Guatemala, and Costa Rica, so that the species has a wide range in our country. In the position of the hyaline spots of the primaries, *E. asine* resembles both *E. auginus* and *E. octomaculata*, but the black spots above the submedian nervure readily enable us to distinguish *E. asine* from the allied forms. Two of these are placed immediately below the central hyaline band, and the third is halfway between them and the base of the wing. In *E. auginus* the spots are absent; in *E. octomaculata* there are only two, which are much less distinct, and the outermost placed much nearer the anal angle.

The male genitalia have a cleft tegumen, the two points diverging considerably; the harpagones end in a well-defined upturned hook.

21. *Eudamus auginus*. (Tab. LXXV. fig. 26 ♂.)

Eudamus auginus, Hew. Descr. Hesp. p. 6 (1867)¹; Ex. Butt., *Eudamus*, ii. f. 13².

Eudamus ceculus, Herr.-Schäff. Prodr. iii. p. 62 (1868)³.

E. asine similis, sed anticis maculis nigris supra venam submedianam nullis, maculis hyalinis anticarum medianis majoribus, ea ad costam absente: subtus posticis interdum fascia obsoleta albida, submarginali et interdum cum capite et corpore viridi lavatis; plica costali in mare obvia.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Zapote (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, David (*Champion*).—AMAZONS VALLEY and BRAZIL.

Hewitson's type of this species came from the Amazons Valley¹, and we have specimens from Para collected by Mr. Bates, and others from Chapada in Matto Grosso by Mr. H. H. Smith. None of these have the green patch on the secondaries beneath or

the light pale submarginal band quite so strongly shown as in Hewitson's figure; but they agree with our Central-American examples, and we have no doubt all belong to the same species.

We have a specimen from the Kaden collection purporting to be a type of Herrich-Schäffer's *E. ceculus*; it clearly belongs to Hewitson's *E. auginus*.

The male genitalia have a tegumen ending in a short blunt point cleft at the end, near which on either side is a short blunt semi-erect projection; the harpagones have a rounded end, near which, on the dorsal edge, is a prominent lobe, carrying a short point on the inner edge. (See Tab. LXXV. fig. 26.)

22. **Eudamus auginulus**, sp. n. (Tab. LXXV. figg. 20, 21, 22 ♂.)

E. augino similis, sed capite et corpore supra murinis haud viridi lavatis, punctis subapicalibus irregulariter positis, medio minimo ab apice quam cæteris magis distante; plica costali obvia.

Hab. MEXICO, Paso de San Juan (*Schaus*); GUATEMALA, Zapote (*Champion*).

We have two specimens of this butterfly before us; they appear at first sight to be inseparable from *E. auginus* of Hewitson, but there is no trace of green on the head, body, or secondaries beneath; likewise the subapical spots are only three in number instead of four, and the middle one is very small, thus rendering their position irregular.

The male genitalia differ in many respects from those of the other species of this group; the tegumen is cleft at the end into two truncate tooth-like points; the scaphium is well-developed and upturned; the harpagones end in a blunt point, on the dorsal edge near the base is a prominent tooth, the point directed outwards, and at the base of the disc a lobe with strong serrations. (See Tab. LXXV. fig. 22.)

23. **Eudamus octomaculatus**. (Tab. LXXV. fig. 23 ♂.)

Hesperia octomaculata, Sepp, Pap. Surinam, ii. t. 58 (1848) ¹.

Eudamus calenus, Mab. Le Nat. x. p. 99, f. 3 (1888) ².

Alis murinis; anticis maculis tribus medianis, una costali bifida, altera in cellula, tertia infra eam, puncto extra eas et tribus subapicalibus semihyalinis; maculis duabus indistinctis fuscis supra venam submedianam, una ad angulum analem, altera mediana; posticis fasciis duabus indistinctis fuscis, una discali, altera cellulari; ciliis sordide albis: subtus fere ut supra, area interna anticarum pallida; palpis et pectore flavido-albis; plica costali nulla.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA (*Türckheim*, *mus. Staudinger* ²); PANAMA (*Ribbe*).—GUIANA; AMAZONS VALLEY and BRAZIL.

There can be little doubt that our specimens referred to above belong to the species described by Sepp as *H. octomaculata*, but whether *Goniuris decussata* of Ménétriés from Haiti is referable to the same insect is questionable. In the absence of specimens from the typical country we are inclined to think not, as Ménétriés's figure shows no indication of the small hyaline spot outside the central band of the primaries, which is present in all our specimens and in Sepp's figure.

Dr. Staudinger has kindly lent us his type of *Eudamus calenus*, Mabilie, and we find that it agrees accurately with our series of *E. octomaculatus*.

The male genitalia have a rather long tegumen cleft at the end, but without lateral lobes; the scaphium is well developed and turned downwards; on the harpagones there is a concave depression towards the end of the dorsal edge, finely serrate and ending in a blunt point directed slightly upwards. (See Tab. LXXV. fig. 23.)

11. *E. ALCIPHON* section. A large white patch on the middle of the secondaries beneath.

24. ***Eudamus alciphron***, sp. n. (Tab. LXXV. figg. 24, 25.)

E. octomaculatae similis, sed posticarum cauda longiore et subtus plaga magna discali extrorsum late fusco marginata alba distinguenda.

Hab. MEXICO, Rincon in Guerrero (*H. H. Smith*), Coatepec in Vera Cruz (*Schaus*).

We have but a single specimen of this species, apparently a female, which differs obviously from *E. octomaculata*, the large white spot on the secondaries beneath rendering it very distinct. A second in the collection of Mr. Schaus precisely resembles the type.

- B. A pencil of hair at the base of the submedian nervure of the primaries of the male beneath, the costa of the secondaries being strongly arched at the base; or a pencil of hair between the median and submedian nervures of the secondaries above near the base. (*Polythrix*, Wats.)

- d. A pencil of hair at the base of the submedian nervure of the primaries of the male beneath. (*Polythrix*.)

25. ***Eudamus metallescens***. (Tab. LXXV. figg. 27, 28, 29 ♂.)

Eudamus metallescens, Mab. Le Nat. x. p. 108, f. 2 (1888)¹.

Alis murinis ad basin viridi lavatis; anticis maculis quatuor medianis, una subquadrata in cellula, una utrinque rami mediani secundi et una obsoleta infra eas ochracea hyalinis punctis quatuor costalibus ad apicem: subtus anticis maculis ut supra, area interna albida, area supra venam submedianam cirrosa, costæ basi et posticis plerumque aureo-viridibus; posticis linea margini externo subparallela flavo-albida; capite et corpore plerumque cum palpis viridibus; plica costali obvia.

Hab. PANAMA, Chiriqui (*Trötsch*, in *mus. Staudinger*), San Miguel, Pearl Islands (*Champion*).—AMAZONS VALLEY¹.

Our specimen agrees with one lent us by Dr. Staudinger, which has been named by Mons. Mabilie, doubtless from the type which came from Maues in the Amazons Valley¹. Our example, however, is small, and when perfect would have possessed longer tails; these unfortunately are now broken. It possesses the peculiar tuft of hairs which is attached to the underside of the primaries between the median and

submedian nervures. This character separates *E. metallescens* from *E. metophis* and other species having a white line on the secondaries beneath, to which it otherwise bears much general resemblance.

The type of *E. metallescens* is a female. We have a precisely similar specimen from British Guiana, and there is another in the British Museum from Honduras.

The male genitalia of *E. metallescens* have a lobe on the ventral edge of the tegumen on either side, the terminal point is short; the distal portion of the harpagones is narrow, and has a rounded end thickly set with a row of sharp teeth. (See Tab. LXXV. fig. 29.)

e. A pencil of hair between the median and submedian nervures of the secondaries above near the base.

26. ***Eudamus undulatus*.** (Tab. LXXV. fig. 30 ♂.)

Eudamus undulatus, Hew. Descr. Hesp. p. 4¹; Ex. Butt., *Eudamus*, ii. f. 16²; Mabillet & Vuillot, Nov. Lep. p. 13, ii. ff. 4, 5³.

Alis murinis; anticis maculis tribus subquadratis, una in cellulæ medio, ceteris ramo mediano secundo utrinque, alteris quatuor aut quinque subapicalibus flavo-hyalinis, ciliis sordide flavis fusco interruptis: subtus murinis, anticis maculis hyalinis ut supra, area costali et margine externo nigro irroratis, macula magna nigra subapicali setis albidis notata; posticis undique nigro irroratis et maculis magnis nigris irregulariter notatis; plica costali nulla.

♀ mari similis.

Hab. MEXICO, Presidio (*Forrer*), Rio Papagaio, Dos Arroyos, Rincon, Acapulco, all in Guerrero, Atoyac, Teapa (*H. H. Smith*), Rinconada, Coatepec, Paso de San Juan (*Schaus*); GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Zapote (*Champion*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*), David (*Champion*).—COLOMBIA; VENEZUELA; BRAZIL.

The locality of Hewitson's type of this species was not recorded, but we have a large series of specimens agreeing with this type from all parts of tropical America, from Western Mexico in the north to Southern Brazil. These are remarkably uniform in their coloration, a slight variation occurring in the size, shape, and number of the median spots of the primaries. In many examples there is no spot below the first median branch, in others a distinct one exists, in others, again, it is evanescent. There appears to be no costal fold in the male of this species, and in the coloration of the underside of the wings *E. undulatus* resembles *E. orion*.

E. undulatus is apparently a common insect throughout Southern Mexico, chiefly in the lowlands bordering both oceans. We found it in similar places in Guatemala up to an elevation of 3000 feet.

The male genitalia of *E. undulatus* have a simple tegumen with a short single central point; the harpagones are blunt, with a short tooth near the end of the dorsal edge. (See Tab. LXXV. fig. 30.)

27. *Eudamus stylites*.

Eudamus stylites, Herr.-Schäff. Prodr. iii. p. 63 (1868)¹; Mab. & Vuill. Nov. Lep. p. 11, t. 2. ff. 2, 3 (1890)².

Goniurus stylites, Plötz, Bull. Soc. Imp. Mosc. lv. No. 3, p. 5 (1880)³.

Alis murino-brunneis; anticis fascia mediana tripartita costam haud attingente, macula discali ultra eam angusta et punctis quatuor subapicalibus in linea obliqua positis flavo-hyalinis; posticis penicillo fusco, ciliis albidis: subtus anticis fere ut in *E. undulato*, area interna ochraceo-albida; posticis fasciis duabus irregularibus fuscis notatis ad costam convergentibus, maculis duabus basalibus ad costam, inter fascias purpureo-fuscis albido atomatis; plica costali nulla.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).—COLOMBIA (*apud Mabilie & Vuillot*); AMAZONS VALLEY; BRAZIL (*apud Plötz*).

We retain this name of Herrich-Schäffer's for a Chiriqui specimen in Dr. Staudinger's collection, which has been kindly lent to us for examination. M. Mabilie, having no doubt compared it with the type, has named it as a subvariety of *E. stylites*, a species he deems, in his work above quoted, somewhat variable in its markings. Plötz is the only writer who refers to the tuft of hairs on the hind wings above; but he does not mention their colour, which is of importance in discriminating these closely-allied forms. The Chiriqui specimen has this tuft brown, like the rest of the upper surface of the wings, as in *E. undulatus*. Others have it tawny.

GONIURUS.

Goniurus, Hübner, Verz. bek. Schm. p. 104 (1816); Watson, P. Z. S. 1893, p. 20.

Mr. Watson keeps this genus separate from *Eudamus*, but its distinctness is open to question. The neurulation of *G. cælus*, the type of *Goniurus*, is almost exactly like that of *E. proteus*, the type of *Eudamus*. The third median segment is rather longer in the former, but this is of little importance; the antennæ, palpi, and legs being alike in both forms. There remains only the shape of the secondaries, which are not tailed to the same extent in *G. cælus* as in *E. proteus*; but this, again, is a variable character within the limits of the former species.

G. cælus is the only species of *Goniurus* according to Mr. Watson; but as *G. talus* agrees in every structural feature (including, to a great extent, the male genitalia) with *G. cælus*, we remove it from *Epargyreus* and place it here.

1. *Goniurus cælus*. (Tab. LXXVI. fig. 1 ♂.)

Papilio cælus, Cram. Pap. Ex. t. 343. ff. C, D.

Eudamus aurunce, Hew. Descr. Hesp. p. 8; Ex. Butt., Eudamus, f. 20.

Alis murinis ad basin cum corpore toto viridi lavatis; anticis maculis quatuor fascia transversa formantibus, macula ultra eas et punctis quatuor costalibus ad apicem in linea perobliqua positis ochraceo-hyalinis: subtus pallidioribus viridi vix lavatis; anticis ut supra, posticis purpureo tinctis et linea discali a vena costali ad venam submedianam extensa nivea, ciliis pallide fuscis; plica costali obvia.

♀ mari similis, sed plica costali nulla.

Hab. MEXICO, Jalapa, Coatepec, Rinconada (*Schaus*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*).—SOUTH AMERICA from Colombia to South Brazil.

All our specimens from the State of Vera Cruz have a very bright shade of green on the upper surface and a paler tint of the same colour on the under surface; in more southern examples the green of the upper surface is not nearly so bright, and nearly, if not entirely, wanting beneath. The transverse white band, too, on the underside of the secondaries varies considerably in width: in our Mexican specimens it is wide, as in Cramer's figure; our Guatemalan specimens vary in this respect, and great diversity is found in our series from more southern districts. So, too, with the tails, which vary from a just perceptible tooth to a fairly defined tail.

The male genitalia have a short terminal point to the tegumen, the scaphium being long, nearly straight, and well-developed; the harpagones have a deep fissure on the dorsal edge, just in front of which is a series of teeth set backwards; the end of the harpagones is rounded, and there is a ventral line in the middle of the disc with a tooth in the middle. (See Tab. LXXVI. fig. 1.)

2. *Goniurus talus*. (Tab. LXXVI. fig. 2.)

Papilio talus, Cram. Pap. Ex. t. 176. f. D¹.

Eudamus talus, Plötz, Stett. ent. Zeit. 1881, p. 501².

Epargyreus talus, Wats. P. Z. S. 1893, p. 24³.

Alis fusco-brunneis; anticis ad basin, posticis fere omnino, capite et corpore læte viridibus; anticis fascia transversa venis quadripartita (macula ad costam bifida), macula subquadrata ultra eam et punctis tribus semihyalinis: subtus ochraceo-brunneis ad basin viridi lavatis; anticis ut supra; posticis maculis duabus discalibus indistinctis ochraceis; palpis albis, squamis viridibus intermixtis; abdomine albido transfasciato.

♀ mari similis.

Hab. MEXICO, Jalapa (*F. D. G., W. Schaus*), Atoyac (*H. H. Smith*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*).—COLOMBIA; GUIANA¹; AMAZONS VALLEY; CUBA; HAITI; PORTO RICO.

G. talus was described by Cramer from Surinam specimens¹; it was found by Bates throughout the Amazon Valley, and it occurs in Colombia and some of the larger West-Indian Islands. In our country it appears to be comparatively scarce, its northern limit extending to Jalapa in the State of Vera Cruz.

On the upper surface *G. talus* closely resembles *G. cælus* of Cramer, but may at once be distinguished by the absence of the broad straight white line on the under surface of the secondaries of the latter insect.

The male genitalia resemble those of *G. cælus* as regards the harpagones, and in this respect are also like those of *Eudamus proteus*; the tegumen and scaphium differ, th

former in its long slender points, and the latter in being much shorter. (See Tab. LXXVI. fig. 2.)

PLESTIA.

Plestia, Mabilie, Le Nat. x. p. 146, f. 1 (1888); Watson, P. Z. S. 1893, p. 21.

This genus contains, so far as at present known, three species, whereof *P. staudingeri* is the type, and one we describe below as new. All of them occur in Mexico or Guatemala.

The antennæ are sickle-shaped, the club being gradually curved and ending in a fine point. They thus differ from those of *Eudamus*, in which the antennæ are abruptly bent backwards near the tip. The third median segment of the primaries is very short, and the recurrent nervure starts from its extremity; the secondaries have a lobe-like projection at the anal angle. The tibiæ of all the legs are densely hairy.

1. *Plestia staudingeri*. (Tab. LXXVI. figg. 3, 4 ♂.)

Plestia staudingeri, Mabilie, Le Nat. x. p. 146, f. 1¹.

Alis brunneis; anticis macula in cellula, altera costali, tertia infra eam, serie submarginali (maculis infima et mediana bifidis, tertia ad apicem singula), punctis tribus alteris costalibus ochraceo-hyalinis, ciliis alterne fuscis et ochraceo-albis; posticis maculis irregularibus discalibus ochraceis, ciliis ut in anticis: subtus, anticis maculis hyalinis ut supra, ad apicem ochraceo variegatis, area interna pallide ochracea; posticis fasciis tribus valde irregularibus et maculosis, una basali extrorsum ochraceo limbata, secunda per cellulam, tertia discali extrorsum late ochraceo marginata; palpis et pectore pallide ochraceis; plica costali obvia.

Hab. GUATEMALA¹ (*von Türckheim, in mus. Staudinger*).

Dr. Staudinger has kindly lent us the type of this distinct species, which was sent to him by Herr von Türckheim probably from the neighbourhood of Coban in Vera Paz. We never met with this species ourselves, though we have allied forms from Mexico and Arizona mentioned below.

2. *Plestia elwesi*, sp. n. (Tab. LXXVI. figg. 5, 6, 7 ♂.)

P. staudingeri similis, sed anticis maculis duabus alteris submarginalibus vena radiali inferiore utrinque positis; posticis maculis discalibus pallidioribus, cauda minus elongata: subtus fasciis nigris melius definitis, area inter fasciam discalem et fasciam per cellulam fere omnino pallide ochracea, distinguenda.

Hab. MEXICO, Orizaba (*H. J. Elwes*).

Mr. Elwes captured a single male specimen of this species at Orizaba in March 1888, from which our description is taken. The species is clearly closely allied to *P. staudingeri*.

The male genitalia are very similar to those of *Eudamus simplicius*; the harpagones have a rounded end, and there is a sharp spine turned backwards at the top of the further edge of a deep dorsal fissure. (See Tab. LXXVI. fig. 7.)

3. *Plestia dorus*. (Tab. LXXVI. figg. 8, 9 ♂.)

Eudamus dorus, W. H. Edwards, Papilio, ii. p. 140¹.

Plestia dorus, Wats. P. Z. S. 1893, p. 21, t. 3. f. 4².

Alis anticis ut in *P. staudingeri* maculatis; posticis maculis quatuor discalibus venis separatis semihyalinis: subtus anticis ad apicem et posticis omnino glauco atomatis, fascia basali nigra vix ulla, fascia discali medialiter maculis hyalinis paginæ superioris interrupta; plica costali obvia.

♀ mari similis, sed plica costali nulla.

Hab. NORTH AMERICA, Arizona¹.—MEXICO, Northern Sonora (*Morrison*).

We have two males and a female of this species, all obtained by Morrison when collecting along the northern frontier of our region. The same collector supplied Mr. Edwards with the types of his description. The species was first placed in the genus *Eudamus*, but we have no doubt it is strictly congeneric with *Plestia staudingeri*, the type of which is before us.

TARSOCTENUS.

Tarsoctenus, Watson, P. Z. S. 1893, p. 21.

The antennæ in this genus resemble those of the members of *Phocides*, having a moderate club and ending in a slender terminal hook. The palpi are densely scaled and the terminal joint more prominent than in the allied genus. There is a costal fold to the primaries, the cell of which is long, exceeding two-thirds of the costa; the discocellulars are only slightly oblique; the third median segment is not much shorter than the second segment; the secondaries have a distinct anal lobe; the discocellular meets the median at the origin of its second branch, the subcostal branch starting before the end of the cell; the hind tibiæ are very short and have only one pair of terminal spurs in the male—one of these is very long, and on the underside of the proximal tarsal joint on either side is a comb of curved reddish-orange bristles, which, when the tibia and tarsus are extended in a line, enclose the long spur. (See Tab. LXXVI. fig. 13.)

The genus contains about seven or eight species, all of them belonging to the Tropical American fauna, the State of Panama being the extreme northern limit of its range, three species occurring in that district.

The coloration of the members of this genus is very diverse, all the species having a colour-resemblance to some species of *Pyrrhopyge* or *Phocides*.

a. Upperside black, with the body and base of the wings tawny yellow; underside black.

1. *Tarsoctenus gaudialis*. (Tab. LXXVI. figg. 10, 11, 12, 13 ♂.)

Erycides gaudialis, Hew. Ent. Monthly Mag. xii. p. 250¹.

E. corytas similis, sed alis ad basin magis fulvescentibus, anticis fascia mediana angustiore, fascia ultra eam bifida multo magis obvia punctisque quinque semihyalinis ad angulum apicalem, squamis paucis cæruleis ad marginem externum: subtus posticis maculis basalibus rufis absentibus.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*¹), Lion Hill (*McLean*).—COLOMBIA.

Both Dr. Staudinger's type from Chiriqui and a specimen in Hewitson's collection from the same source have a small white submarginal spot on the secondaries beneath near the anal angle, which is not shown in our specimens; but they present no other difference. The species appears to be rare, as we have only seen a single specimen from each of the localities mentioned above, with the exception of Chiriqui.

The male genitalia have a simple tegumen terminating in a single blunt point; the scaphium is feebly developed; the harpagones end in a blunt upturned point, near which on the dorsal edge is a short lobe. (See Tab. LXXVI. fig. 12.)

2. *Tarsoctenus corytas*.

Papilio corytas, Cram. Pap. Ex. t. 100. f. C¹.

Papilio pyramus, Cram. Pap. Ex. t. 245. f. E².

Alis purpureo-nigris ad basin fulvis; anticis fascia lata per cellulam trifida semihyalina macula elongata obliqua, infra eam puncto ad cellulæ finem quoque semihyalinis; posticarum ciliis albis: subtus chalybeo-nigris, anticis maculis semihyalinis ut supra, posticis maculis ad basin rufis, pectore quoque rufo; capite supra nigro albo maculato, palpis et genis albis.

Hab. PANAMA, Chiriqui (*Trötsch*).—GUIANA^{1 2}; AMAZONS VALLEY.

A single specimen from Chiriqui in Dr. Staudinger's collection agrees accurately with one in our own from Nauta in the Upper Amazons valley. The species was described by Cramer from Surinam specimens^{1 2}. Both of Cramer's figures quoted above appear to represent the same insect, though they show a different number of hyaline spots in the apical portion of the primaries. Our examples prove that this is a somewhat variable character.

b. Upper and under sides black, crossed with greeish-blue bands.

3. *Tarsoctenus perissographus*. (Tab. LXXVI. figg. 14, 15.)

Erycides perissographus, Mab. Le Nat. xi. p. 59. f. 2 (1889)¹.

Alis nigris; anticis ad basin et maculis quibusdam ad angulum analem et marginem externum viridi-cyaneis, fasciis tribus semihyalinis, una tripartita per cellulam, una ultra eam bipartita et tertia subapicali quinque-partita, macula altera semihyalina ad medium marginis interni; posticis, linea cæruleo-albida margini interno subparallela, fascia valde irregulari submarginali viridi-cyanea, ciliis albis nigro interruptis: subtus ut supra, fasciis omnibus magis distinctis; posticis macula altera ultra cellulam cærulea; capite albo punctato, palpis medialiter albis, abdomine glauco stria dorsali nigra et nigro cincto.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*¹), Volcan de Chiriqui, Bugaba (*Champion*).—AMAZONS VALLEY.

The type of this species, which has been kindly lent us by Dr. Staudinger, is a female, and all the specimens we possess are of that sex, so that we can only assign the species to this genus from its close resemblance to *T. papias* (Hew.), which certainly belongs here, though the peculiar structure of the hind tibiæ and tarsi is not so fully shown as in the type of the genus, *T. plutia* (Hew.).

From *T. papias* the present species differs in having fewer diaphanous subapical spots and in the spot near the middle of the inner margin being quadrate rather than triangular, and diaphanous instead of greenish blue. In *T. papias* the submarginal blue band of the secondaries both above and below is less broken, and there is no distinct spot lying inside it on the underside.

A female specimen, taken by Bates at Tunantins on the Upper Amazon, belongs to *T. perissographus* rather than to *T. papias*, though somewhat intermediate between the two.

PHOCIDES.

Phocides, Hübner, Verz. bek. Schmett. p. 103 (1816) ; Wats. P. Z. S. 1893, p. 21.

Erycides, Hübner, Verz. bek. Schmett. p. 110 (1816) ; et auctt.

Dysenius, Scudder, Rep. Peab. Ac. Sc. iv. p. 67 (1872).

This genus, as now restricted, contains about sixteen species, all of them belonging to the Neotropical region. *P. pygmalion* and its allies have a close colour-resemblance to several species of *Jemadia*, which in some cases is so exact that the structure of the antennæ alone distinguishes them externally. On the other hand, *P. palemon* and its immediate relations are more like certain species of *Pyrrhopyge*, but the resemblance is not so close.

Seven species are found within our limits, and are distributed over the whole area from the confines of the United States to Panama.

The antennæ have a stout club ending in a fine sharply pointed hook ; the terminal joint of the palpi is very small, and the end just appears beyond the dense scales of the second joint. The primaries have a costal fold ; the cell is long, exceeding two-thirds of the costa ; the discocellulars are very oblique, the lower discocellular much stronger and longer than the middle and strongly arched ; the third segment of the median is very short, and a recurrent nervure proceeds from its extremity ; the secondaries are elongated, the discocellular meets the median just beyond the origin of its second branch. The tibiæ of the hind legs have two pairs of spurs and a well-developed dorsal crest.

The strongly arched long lower discocellular of the primaries is characteristic of this genus.

a. Secondaries above and beneath with blue or green stripes. (*Phocides*.)

1. *Phocides pygmalion*. (Tab. LXXVI. fig. 16 ♂.)

Papilio pygmalion, Cram. Pap. Ex. t. 245. ff. A, B¹.

Erycides pigmalion, Plötz, Stett. ent. Zeit. 1879, p. 410².

Erycides thermus, Mab. Bull. Soc. Ent. Belg. xxvii. p. li³ (1883) ?

Alis nigris ; anticis fasciis transversis tribus semihyalinis, una quadripartita per cellulam, altera bifida ultra eam, tertia quoque quadripartita ad apicem, lineis quinque viridi-cæruleis a basi radiantibus, duabus ad

marginem internum elongatis ad angulum analem extensis, tribus reliquis abbreviatis, fascia submarginali interrupta cærulea ad angulum apicalem evanescenti; posticis lineis quatuor plus minusve margini interno parallelibus, tribus interioribus albicantibus quarta cærulescentiora, fascia submarginali maculosa quoque cærulescenti; ciliis inter venas albis: subtus fere ut supra, posticis fasciis tribus margini interno parallelibus cæruleis, tertia fascia submarginali in medio conjuncta; capite nigro-cæruleo albo fasciato, thorace albido striato, abdomine, præter dorsum nigrum, albido cincto.

Hab. GUATEMALA, Polochic valley (*F. D. G. & O. S.*), Panima (*Champion*); HONDURAS (*mus. Staudinger*); NICARAGUA (*Belt*); PANAMA, Veraguas (*Arcé*), Lion Hill (*McLeannan*).—SOUTH AMERICA, from Colombia to S. Brazil.

Mons. Mabilie in 1883 (*Bull. Soc. Ent. Belg.* 1883, p. li) divided *P. pygmalion* of Cramer as understood by the older writers into five species, and in 1888 (*Le Nat.* x. p. 77) he added another, *P. perillus*. Of these we recognize the latter without difficulty, and also *P. distans* (H.-S.). *P. pygmalion* itself we are inclined to look upon as a widely ranging rather variable species. Central-American and Colombian specimens have the middle diaphanous band of the primaries narrow; but it is always present, so that we are in doubt whether M. Mabilie's name, *E. thermus*³, is applicable to them, as in that species this band is said to be absent. In specimens from South Brazil this band becomes an oval bifid spot, and in this form is *Erycides hewitsoni* of Mabilie. Every intermediate form exists, so that any separation is difficult if not impossible.

The most northern limit of the range of this species is Eastern Guatemala, where we found it in some abundance in the valley of the Polochic river up to an elevation of about 3000 feet.

The male genitalia have a long decurved tegumen, from the middle of which on either side is a narrow rod reaching nearly to the end of the tegumen, but raised above it; the harpagones have a rounded serrate end, the serration passing in a curve inwards over the disc; there is a slight depression on the dorsal edge before the end. (See Tab. LXXVI. fig. 16.)

2. *Phocides belus*, sp. n. (Tab. LXXVI. figg. 17, 18 ♂.)

P. pygmalioni similis, sed maculis hyalinis anticarum (præsertim iis ad apicem) multo majoribus striisque cæruleis saturationibus et angustioribus.

Hab. MEXICO, Ventanas (*Forrer*), Tampico (*Richardson*), Paso de San Juan (*Schaus*).

The large transparent spots of the primaries and the deeper tint of the blue stripes of this Mexican form of *P. pygmalion* render it fairly distinct. It appears to be somewhat rare, though our specimens are from widely separated localities. Mr. Forrer's examples were taken at Ventanas in the State of Durango at an altitude of 2000 feet above the sea. In Vera Cruz it occurs at a much lower elevation.

The male genitalia are precisely like those of *P. pygmalion*.

3. *Phocides distans*. (Tab. LXXVI. figg. 19, 20, 21 ♂.)

Erycides distans, Herr.-Schäff. Prodr. iii. p. 60¹; Plötz, Stett. ent. Zeit. 1879, p. 410²; Mab. Bull. Soc. Ent. Belg. xxvii. p. lii (1883)³.

E. pygmalioni similis, sed alis angustioribus anticis lineis duabus margini interno parallelibus medialiter interruptis.

Hab. PANAMA, Bugaba (*Arcé, Champion*), Chiriqui (*Trötsch, in mus. Staudinger*).—CUBA².

Dr. Staudinger has lent us a specimen of this species named as above, and we have three others exactly similar, all being from the neighbourhood of Chiriqui. In outward appearance it closely resembles *P. pygmalion*, but the secondary male sexual characters show that the two insects are perfectly distinct. In *P. distans* the tegumen has a short process on either side, the extremity of which falls far short of the end of the central piece. They are also present in *P. pygmalion*, but are much longer, reaching to the end. The harpagones in *P. distans* are simple lobes with teeth at the extremity. In *P. pygmalion* the whole of the rounded extremity is distinctly serrated; this serration is continued in a line along the inner face of the lobe. (See Tab. LXXVI. fig. 21.)

According to Plötz² *P. distans* is found in Cuba.

4. *Phocides urania*. (Tab. LXXVI. fig. 22 ♂.)

Erycides urania, Doubl. & Hew. Gen. Diurn. Lep. t. 79. f. 1¹; Scudder, Rep. Peab. Ac. Sc. iv. p. 67 (1872)²; Plötz, Stett. ent. Zeit. 1879, p. 408³; Aaron, Ent. News, i. p. 23 (1890)⁴.

Alis nigris; anticis inter venas undique viridibus, fasciis duabus semihyalinis, una per cellulam trifida, altera ultra eam bifida, maculis quinque subapicalibus bene separatis quoque semihyalinis; posticis lineis quatuor a basi radiantibus, maculis septem submarginalibus, aliisque duabus ad costam glauco-viridibus; ciliis inter venas albis; subtus maculis semihyalinis ut supra, colore viridi minus obvio ad marginem externum præcipue indicato; posticis maculis omnibus cærulescentioribus.

Hab. TEXAS^{2 4}.—MEXICO^{1 4}, Ventanas (*Forrer*), Jalapa (*Höge, Schaus, Trujillo*), Putla (*Rébouch*); GUATEMALA², Polochic valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*).

This species has long been known as an inhabitant of Mexico, having been figured in Westwood and Hewitson's 'Genera of Diurnal Lepidoptera' in 1852. Several collectors have since obtained it in many parts of that country, especially in the neighbourhood of Jalapa; but it is not confined to the eastern portion of Mexico, for Mr. Forrer secured an example at Ventanas in the Sierras of Durango.

Mr. Scudder has recorded a specimen from Texas obtained during the Boundary Survey by Capt. Pope².

From Mexico it spreads southwards through Guatemala, occurring in the Polochic valley and at San Gerónimo at an elevation of 3000 feet above the sea. It has

a near ally in the islands of Porto Rico and San Domingo which we described as *E. pyres*, and another in Costa Rica which is mentioned below*.

The male genitalia have the short lateral lobes to the tegumen as seen in *P. distans*; the harpagones end in two points—the upper one is long and serrate at its base, the lower one is shorter and blunter. (See Tab. LXXVI. fig. 22.)

5. *Phocides vida*.

Erycides vida, Butl. Cist. Ent. i. p. 86¹; Lep. Ex. p. 187, t. 64. f. 4²; Butl. & Druce, P. Z. S. 1874, p. 368³.

P. uraniæ similis, sed anticarum dimidio apicali fusco-nigro immaculato, fasciis et maculis semihyalinis nullis.

Hab. COSTA RICA (*Van Patten*^{1 2 3}); PANAMA, Chiriqui (*Trötsch*, in *mus. Staudinger*).

Mr. Butler's type¹, which formed part of Van Patten's large Costa Rican collection, is still the only one we possess; but Dr. Staudinger has submitted to us another, taken by his collector Trötsch in Chiriqui, which differs in no way from the type. The species evidently has a restricted range and probably does not pass the limits of Costa Rica and the adjoining State of Panama.

b. Secondaries above and beneath, except the fringe, black. (*Dysenius*.)

6. *Phocides palemon*.

Papilio palemon, Cram. Pap. Ex. t. 131. f. F¹.

Erycides palemon, Plötz, Stett. ent. Zeit. 1879, p. 406²; Mab. Bull. Ent. Soc. Fr. 1880, p. xlv³.

Alis chalybeo-nigris; anticis costa et basi viridi-cæruleo striatis, ciliis albis, macula costali bifida nigro cincta sanguinea; posticis ciliis late albis ad angulum analem fulvis; thorace viridi-cæruleo quadri-striato; capite postico, palpis et genis sanguineis; capite summo nigro-cæruleo punctato.

Hab. PANAMA, Bugaba (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA from COLOMBIA and GUIANA to SOUTH BRAZIL.

This well-known South-American species occurs in our country throughout the State of Panama but not beyond, for in Costa Rica and thence northward its place is entirely taken by its very near ally *P. lilea*, from which, however, it is readily distinguished by the fulvous margin at the anal angle of the secondaries.

M. Mabille has described a species allied to *P. palemon* under the name of *P. spurius*³. Its locality is not recorded.

The male genitalia of *P. palemon* have short lateral lobes to the tegumen; the harpagones are simple, obliquely truncate, with the outer edge indistinctly serrate.

* Mr. Scudder has described a species of this genus under the name of *Erycides texana* (Report Peab. Ac. Sc. iv. p. 68, 1872). It is said to differ from *P. urania* in the total absence of the green markings of the upper surface of the primaries and in having the markings of the secondaries very pale dull yellow-brown instead of bright green. The type was obtained during the Mexican Boundary Survey by Capt. Pope. We have no specimen answering to this description.

7. *Phocides lilea*. (Tab. LXXVI. figg. 23, 24 ♂.)

Erycides lilea, Reak. Proc. Ac. Phil. 1866, p. 339¹.

Erycides albicilla, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 61 (1869)²; Plötz, Stett. ent. Zeit. 1879, p. 406³.

Dysenius albicilla, Scudder, Rep. Peab. Ac. Sc. iv. p. 67 (1872)⁴.

Dysenius cruentus, Scudder, Rep. Peab. Ac. Sc. iv. p. 67 (1872) (nec *Phocides cruentus*, Hübner)⁵.

? *Erycides sanguinea*, Scudder, Rep. Peab. Ac. Sc. iv. p. 68⁶.

Erycides socius, Butl. & Druce, Cist. Ent. i. p. 112; P. Z. S. 1874, p. 368⁷.

Erycides decolor, Mab. Bull. Soc. Ent. Fr. 1880, p. xlvii⁸?

P. palemoni persimilis, sed ciliis posticarum omnino albis distinguendus.

Hab. TEXAS⁶?—MEXICO, Vera Cruz (*W. H. Edwards*), Coatepec (*Schaus*), Cordova (*Höge*, *Rümeli*), Atoyac (*H. H. Smith*), Jalisco (*Schumann*), Rincon in Guerrero (*H. H. Smith*), Tehuantepec (*Scudder*⁴); GUATEMALA (*Scudder*⁵), Chisoy, Polochic and Motagua Valleys (*F. D. G. & O. S.*), Tocoy (*Champion*); COSTA RICA (*Van Patten*⁷).

There can be hardly any doubt that all the above names refer to one species. Dr. Staudinger has lent us Herrich-Schäffer's type of *E. albicilla* and we have the type of *E. socius*, and they both agree with Reakirt's excellent description. Scudder's *D. cruentus* we have little doubt was based upon a male; under any circumstances his name is inadmissible, as *cruentus* has already been used by Hübner and is a synonym of *P. palemon*. *E. sanguinea* of Scudder⁶ seems also to belong here, and also *E. decolor*, Mabilie⁸. *P. lilea* appears to be most abundant in the State of Vera Cruz, but it also occurs in Western Mexico, both in the State of Guerrero and, according to Mr. Scudder, at Tehuantepec⁴; it also is found sparingly in the valleys of Eastern Guatemala.

The white fringe of the anal angle of this species as compared with the fulvous fringe of *P. palemon* is a slight but obvious character; the secondary sexual male organs of the two forms present no tangible difference. (See Tab. LXXVI. fig. 24.)

HETEROPIA.

Heteropia, Mabilie, Le Nat. xi. p. 68 (1889); Wats. P. Z. S. 1893, p. 22.

In the general outline of the wings this genus resembles *Epargyreus*, but the antennæ are more sickle-shaped, the club being gradually curved and ending in a sharp point; the primaries have no costal fold, the lower and middle discocellulars are nearly equal and in a straight line, the third median segment short and there is a recurrent nervule from its extremity; the second median branch of the secondaries starts before the end of the cell; the hind tibiæ have two pairs of spurs, and the spines on the underside of the tarsi are not conspicuous.

Heteropia, which was founded on *H. imitatrix*, a synonym of *H. imalena*, is a small but compact genus of three or four closely allied but distinct species. Of these, three

occur within our limits. *H. bryaxis* and *H. melon* have the most northern range, occurring in the Mexican State of Vera Cruz.

1. *Heteropia bryaxis*. (Tab. LXXVI. fig. 25 ♂.)

Eudamus bryaxis, Hew. Descr. Hesp. p. 11¹; Ex. Butt., Eudamus, t. 1. ff. 2, 3².

Alis nigricanti-brunneis purpureo tinctis; anticis ad basin posticis fere omnino ochraceis, anticis maculis quatuor in linea recta transversa, una bifida costali, una in cellula, duabus ad angulum analem, macula altera subquadrata extra eas, punctis quatuor subapicalibus, et altera infra eas omnibus semihyalinis; ciliis albidis brunneo interruptis: subtus purpureo-brunneis; anticis maculis hyalinis ut supra; posticis fasciis tribus irregularibus semi-interruptis, una basali, altera per cellulam, tertia discali, disco reliquo albido, lunulis submarginalibus fuscis.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*), Paso de San Juan (*Schaus*), Cordova (*Rümeli*); GUATEMALA^{1 2}, San Gerónimo, Polochic valley (*F. D. G. & O. S.*).

A well-marked species, described by Hewitson from a Guatemalan specimen. We have several examples from that country and others from the Mexican State of Vera Cruz.

The male genitalia have a short tegumen ending in a pair of truncate hooks; the scaphium is long and lies close under the tegumen; the harpes are rounded, but deeply cleft at the end; the lower segment turns upwards and terminates in several well-defined teeth. (See Tab. LXXVI. fig. 25.)

2. *Heteropia melon*, sp. n. (Tab. LXXVI. figg. 26, 27.)

H. bryaxi similis, sed alis supra ad basin brunneis haud ochraceis, et posticis subtus ad marginem externum haud albo notatis distinguenda.

Hab. MEXICO, Jalisco (*Schumann*), Amula, Dos Arroyos, Venta de Zopilote (*H. H. Smith*), Rinconada, Paso de San Juan (*W. Schaus*), Coatepec (*Brooks, W. Schaus*); GUATEMALA, Motagua valley (*F. D. G. & O. S.*).

Closely resembles *H. bryaxis*, but differs in the points mentioned above. Most of our specimens are from Western Mexico; but it is not wholly confined to that district, for we have one example, clearly of the same species, which was sent us by Mr. Brooks from Coatepec in the State of Vera Cruz, and a single specimen captured by ourselves in the valley of the Motagua in Guatemala also belongs here.

3. *Heteropia imalena*.

Telegonus imalena, Butl. Lep. Ex. p. 109, t. 40. f. 1¹; Butl. & Druce, P. Z. S. 1874, p. 367².

Heteropia imitatrix, Mab. Le Nat. xi. p. 68 (1889)³.

H. bryaxi similis, sed alis supra viridescenti-nigris ad basin olivaceo nigricantibus: subtus posticis ad marginem externum vix pallidioribus, fasciis transversis nigris magis obviis.

Hab. COSTA RICA (*Van Patten*^{1 2}); PANAMA, Chiriqui (*Ribbe*), Bugaba, Peña Blanca (*Champion*), Calobre (*Arcé*).—LOWER AMAZONS, Manaos³.

BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1893.

This species is obviously allied to *H. bryaxis*, but may readily be distinguished by the absence from the upper surface of the wings of all ochreous colouring. The first specimens described were in Van Patten's Costa Rican collection ¹; we now know it to inhabit the State of Panama, where Mr. Champion and other collectors met with it, and the Amazons Valley, whence M. Mabilie's type of *Heteropia imitatrix* came ³. The latter agrees precisely with that of *H. imalena*.

SPATHILEPIA.

Spathilepia, Butler, Ent. Monthly Mag. vii. p. 57 (1870); Wats. P. Z. S. 1893, p. 23.

Mr. Watson restricts this genus to a single species, *S. clonius* (Cr.), though several other species have been placed in it by various writers.

The antennæ resemble those of *Eudamus* and are bent to a hook at the end. The primaries have a costal fold; the apex is truncate and there is a distinct projection on the outer margin at the end of the lower radial; the second median segment is more than twice as long as the third segment, and a recurrent nervule starts from the middle of the latter; the second median branch of the secondaries starts just before the end of the cell; the anal lobe of the secondaries is distinct.

1. *Spathilepia clonius*. (Tab. LXXVI. fig. 28 ♂.)

Papilio clonius, Cram. Pap. Ex. t. 80. ff. C, D ¹.

Spathilepia clonius, Butl. Ent. Monthly Mag. vii. p. 57 ²; Butl. & Druce, P. Z. S. 1874, p. 367 ³.

Alis fuscis; anticis fascia transversa mediana venis quadripartita, lineola ultra eam inter venam medianam et ramum suum secundum, punctisque subquadratis subapicalibus semihyalinis: subtus ut supra, anticis dimidio apicali et posticis omnino saturate brunneo et albido marmoratis; capite utrinque albo punctato, genis albis, palpis fuscis.

Hab. MEXICO, Jalisco (*Schumann*), Acapulco, Tierra Colorada, Acaguizotla (*H. H. Smith*), Cordova (*Rümeli*), Atoyac, Vera Cruz, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Chisoy, Polochic and Central valleys (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S., Champion*), Zapote (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten* ³), Caché (*Rogers*); PANAMA, Calobre (*Arcé*).—SOUTH AMERICA generally from Colombia to South Brazil.

This widely spread species is very common throughout our region, occurring in the hot country from the sea-level to an altitude of 4000 feet in the mountains. So far as we can see there is hardly any variation between individuals of this species, Mexican and Brazilian specimens agreeing in every respect.

The male genitalia have a tegumen ending in a single rather depressed point; the end of the scaphium is not strongly developed; the harpes have an erect lobe standing near the end of the dorsal edge, the end of this bifurcates into two points. (See Tab. LXXVI. fig. 28.)

EPARGYREUS.

Epargyreus, Hübner, Verz. bek. Schm. p. 105 (1816); Scudd. Butt. New Eng. ii. p. 1393; Wats. P. Z. S. 1893, p. 23.

The well-known North-American *E. tityrus* (Fabr.) is the type of this genus, with which are now associated fourteen or fifteen other species, all of them from the Neotropical region. Two species of wide range in Tropical America occur within our limits; a third, *E. gaumeri* (a race of *E. exadeus*), is found in the island of Ruatan.

The following characters, according to Mr. Watson, define *Epargyreus*:—The secondaries have no tail but only a projecting tooth at the end of the submedian nervure; the antennæ are distinctly hooked; the hind tibiæ have two pairs of spurs; the lower discocellular of the primaries is straight; no tufts of hair on either wing; male with a costal fold to the primaries; second median branch of the secondaries emitted some way before the end of the cell.

Besides these points the following may also be noted:—The palpi are densely scaled, so that the tips of the terminal joints are only just visible; the upper discocellular is very short, the middle and lower discocellulars are in a straight line and subequal; the third median segment is long, being considerably more than half the second, and the recurrent nervule starts from nearer its proximal than its distal end.

1. *Epargyreus exadeus*. (Tab. LXXVII. fig. 1 ♂.)

Papilio exadeus, Cram. Pap. Ex. t. 260. f. C¹.

Goniurus exadeus, Butl. & Druce, P. Z. S. 1874, p. 366².

Epargyreus exadeus, Wats. P. Z. S. 1893, p. 23³.

Alis brunneis ad basin cum corpore ferrugineis; anticis maculis quatuor bene separatis a costa ad angulum analem, altera parva ultra eas, et punctis duobus aut tribus subapicalibus semihyalinis; posticis vix caudatis, ciliis albidis brunneo interruptis: subtus saturate brunneis; anticis maculis ut supra, apice et medio marginis externi albo dense atomatis; posticis plaga discali irregulari interdum integra, interdum bi- aut tri-secta, et linea ultra eam valde irregulari sericeo-albis, marginis externi medio late et dense albo atomato; plica costali obvia.

♀ mari similis sed major, alis latioribus et plica costali nulla.

Hab. MEXICO, Milpas in Durango (*Forrer*), Jalisco (*Schumann*), Bolaños (*Richardson*), El Papagaio, Tierra Colorada, Acapulco, Venta de Zopilote, all in Guerrero (*H. H. Smith*), Jalapa, Coatepec, Rinconada, Paso de San Juan (*W. Schaus*), Orizaba (*H. J. Elwes*), Cordova (*Rümeli*), Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Pacific coast, Chisoy and Polochic Valleys, San Gerónimo (*F. D. G. & O. S.*), Zapote, San Gerónimo (*Champion*); HONDURAS (*mus. Staudinger*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*²), Caché (*Rogers*); PANAMA, Chiriqui (*Arcé, Champion*), Bugaba (*Champion*), Calobre (*Arcé*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA, from Colombia to the Argentine Republic; Trinidad.

This is one of the commonest species of American Hesperiidæ, ranging throughout the tropical portions of that continent and reaching an altitude of from 3000 to 4000 feet in the mountains. As might be expected, considerable variation occurs in different individuals, chiefly affecting the size of the spots crossing the primaries; these, as a rule, are smaller in Central American than in more southern examples, but many exceptions occur. The white silvery spot on the secondaries beneath also varies greatly, but, so far as we can see, not according to any law of distribution. We are not aware that the true *E. exadeus* passes the northern limit of Mexico; it is replaced in the United States by *E. tityrus*, and this last-named species is said to occur in Mexico, but we are unable to confirm this statement.

The male genitalia have a short tegumen ending in two rather sharp points; the scaphium is well developed and reaches nearly to the end of the points of the tegumen; the harpes have the end slightly upturned, the terminal portion of the dorsal edge being distinctly serrate, at the end of the basal half of the dorsal edge arises a large lobe tapering to a blunt end, from which proceed a fascicle of strong spines directed forwards and slightly upwards. (See Tab. LXXVII. fig. 1.) These organs are exactly like those of *E. tityrus*, the type of *Epargyreus*.

2. *Epargyreus gaumeri*, sp. n. (Tab. LXXVII. figg. 2, 3 ♂.)

E. exadeo similis, sed alis ad basin vix ferrugineo tinctis; posticis subtus fere immaculatis.

Hab. HONDURAS, Ruatan Island (*Gaumer*).

Mr. Gaumer's collection from Ruatan Island contains three specimens of this form of *E. exadeus*. These differ from all the continental specimens in having the secondaries beneath nearly spotless and without a trace of the silvery-white patch. They are generally darker, this feature extending even to the colour of the palpi.

3. *Epargyreus asander*. (Tab. LXXVII. fig. 4 ♂.)

Eudamus asander, Hew. Descr. Hesp. p. 9¹; Ex. Butt., Eudamus, t. 3. f. 24².

Epargyreus asander, Wats. P. Z. S. 1893, p. 24³.

Alis fuscis ad basin dilutioribus; anticis fascia transversa obliqua venis quadripartita, macula ultra eam, et punctis tribus subapicalibus (duobus costalibus conjunctis, tertio magis distante) ochraceo-hyalinis: subtus anticis maculis hyalinis ut supra, costa et area apicali olivaceo-albo lavatis; posticis olivaceis albo præcipue in dimidio distali albo atomatis, fascia lata mediana alba margine suo interno bene definito, margine externo indefinito.

♀ mari similis.

Hab. MEXICO, Mazatlan, Ciudad in Durango (*Forrer*), Jalisco (*Schumann*), Chilpancingo, Acapulco, both in Guerrero (*H. H. Smith*), Jalapa, Rinconada (*W. Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Volcan de Santa Maria (*Richardson*), San Gerónimo, Dueñas (*Champion*); HONDURAS, San

Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé*; *Trötsch*, *in mus. Staudinger*).—VENEZUELA; AMAZONS VALLEY¹; S.E. BRAZIL; JAMAICA; HAITI.

Hewitson's types of this species were from Ega on the Upper Amazons, and were probably collected by Bates¹. We now know that its range extends over a very wide area of the Neotropical region, from North-western Mexico to South Brazil. Individual variation chiefly affects the white band on the secondaries beneath, as regards the definition of its outer margin; sometimes this is fairly well defined, at others it blends with the light colouring of the outer portion of the wings. The tint of the apical portion of the primaries and also of the secondaries varies a good deal from olive to purple; this is probably due very much to the age of the specimen and the action of light.

The range in altitude of *E. asander* in our country extends from the sea-level to about 5000 feet.

The male genitalia differ from those of *E. exadeus* chiefly in the form of the harpes; these are rounded at the end and have a dorsal cleft, on each side of which is a cluster of strong serrations, a spine directed upwards lies just inside the end, and a strongly serrated lobe occupies the end of the disc. (See Tab. LXXVII. fig. 4.)

PROTEIDES.

Proteides, Hübner, Verz. bek. Schm. p. 105 (1816); Wats. P. Z. S. 1893, p. 24.

Dicranaspis, Mabille, Ann. Soc. Ent. Belge, xxi. p. 24 (1878).

In general appearance *P. idas*, the type of *Proteides*, resembles *Epargyreus exadeus*, and the neuration of the wings is very similar. On the underside the character of the markings of the secondaries of *P. idas* differs from that of *E. exadeus*; the primaries have no costal fold in the male, the antennæ have a more distinctly swollen club, the attenuated end beyond it being more slender by contrast. The male genitalia differ in many respects, as a reference to the figures will show.

P. idas has a very wide range in Central and South America, and is the only member of the genus found there; but two or three modified allied forms occur in the West-Indian Islands.

1. *Proteides idas*. (Tab. LXXVII. fig. 5 ♂.)

Papilio idas, Cram. Pap. Ex. t. 260. ff. A, B¹; Sepp, Surin. Vlind. iii. p. 231, t. 104².

Proteides idas, Butl. & Druce, P. Z. S. 1874, p. 368³.

Eudamus idas, Plötz, Stett. ent. Zeit. 1882, p. 92⁴.

Alis nigricanti-brunneis ad basin cum capite et thorace fulvis; anticis maculis quatuor in linea recta transversa positis, una costali, altera in cellula, duabus infra eam rami mediani primi utrinque, macula altera parva ultra eas infra venam medianam, puncto subapicali (interdum duobus) semihyalinis; posticis breve caudatis, ciliis albis nigro interruptis: subtus anticis maculis ut supra, dimidio distali (apice excepto)

dense albo atomato, posticis quoque dimidio distali albo atomatis, macula triangulari elongata discali rufescente nigro limbata; abdomine nigro, albo regulariter circumcincto.

♀ mari similis.

Hab. MEXICO, Acapulco, Dos Arroyos, both in Guerrero (*H. H. Smith*), Cordova (*Höge*), Jalapa, Coatepec (*Schaus*), Atoyac (*Schumann, H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Los Altos, Polochic and Central valleys (*F. D. G. & O. S.*); HONDURAS (*mus. Staudinger*); COSTA RICA (*Van Patten*³), Irazu (*Rogers*); PANAMA, Calobre (*Arcé*), Lion Hill (*M^cLeannan*).—COLOMBIA; PERU; GUIANA^{1 2}; AMAZON REGION to S.E. BRAZIL; HAITI.

Cramer's description and figure of this species were based upon Surinam specimens¹, our numerous examples from Central and South America agreeing very well with the figure. A certain amount of individual variation, however, can be traced in our series, chiefly affecting the outer half of the secondaries beneath, the light markings being more extensive in some specimens than in others. On the upper side *P. idas* much resembles *Epargyreus exadeus*, but the two species may be readily distinguished by the markings of the secondaries beneath. The Cuban form differs in having the primaries nearly spotless, while in that from the island of Dominica, which we described under the name of *Proteides angasi*, all the white markings of the underside are replaced by chocolate-red. Mr. H. H. Smith has recently sent us similar specimens from the island of St. Vincent.

P. idas has a considerable range in altitude in our country, being found from the sea-level to a height of 4000 or 5000 feet.

The male genitalia have a cleft tegumen; the scaphium is feebly developed and short; the harpes are drawn to a point where there is a short spine, the ventral edge curves upwards to meet the dorsal edge, which is much straighter and without a distinct fissure. (See Tab. LXXVII. fig. 5).

CHRYSOPECTRUM.

Chrysoplectrum, Watson, P. Z. S. 1893, p. 24.

Mr. Watson separated this genus from *Eudamus* chiefly on the peculiar character of the hind tarsi, which have on their under surface two series of thickly set golden spines. These spines are somewhat like those found in *Tarsoctenus*, but are not nearly so long; the terminal tibial spurs, too, are much shorter than in that genus, and the subterminal pair are present.

The antennæ have a moderate club and are bent to a hook, the recurved portion being very slender; the primaries have a costal fold; the discocellulars are nearly straight and in a line; the third median segment is short, about one-third of the second segment, and there is no recurrent nervule from it; the discocellular of the secondaries

is very slender and meets the median at the origin of its second branch. Besides the type, *C. otriades* (Hew.), we only know of the following species and one undescribed in our collection.

1. **Chrysoplectrum perniciosum.** (Tab. LXXVII. figg. 6, 7, 8 ♂.)

Eudamus perniciosus, Herr.-Schäff. Prod. Syst. Lep. iii. p. 65 (1868)¹; Plötz, Stett. ent. Zeit. 1882, p. 88².

Carystus epicincea, Butl. & Druce, Cist. Ent. i. p. 113 (July 1872)³; P. Z. S. 1874, p. 368⁴.

Alis fuscis fere unicoloribus, anticis fascia transversa mediana venis quadripartita costam haud approximante semihyalina: subtus ad basin leviter viridi lavatis, fascia transversa ut supra sed macula bifida ad costam alba, macula ad angulum analem albo circumcincta, margine interno ad angulum analem late albo; posticis maculis duabus indistinctis discalibus albidis, ciliis indistincte albis, plica costali obvia.

Hab. MEXICO, Atoyac (*H. H. Smith*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{3 4}); PANAMA, Chiriqui (*mus. Staudinger*).—AMAZONS VALLEY, Rio Negro².

Dr. Staudinger has kindly lent us a specimen from Chiriqui which he had compared with the type of *E. perniciosus*. We have one Nicaraguan specimen from Belt's collection which agrees precisely with the Chiriqui insect and with the type of *Carystus epicincea* from Costa Rica. We have also several specimens from Mr. Bates's collection from San Paulo on the Upper Amazons as well as from Pará; these are undoubtedly referable to the same insect. Its northern range extends to Mexico, whence we have a single male specimen taken at Atoyac by Mr. Smith.

C. perniciosum is strictly congeneric with *C. otriades**, the type of the genus, and has the tarsal spines to the hind legs developed in the same way.

The male genitalia of *C. perniciosum* have a truncated short tegumen cleft at the end, the scaphium being highly developed. The harpes terminate in a single isolated spine, above which the outer edge is thickened and strongly serrate. (See Tab. LXXVII. fig. 8.)

We have dissected two specimens—one from Mexico, the other from the Amazons Valley, and they agree in every respect.

ACOLASTUS.

Polygonus, Hübner, Ex. Schmett. ii. t. 144 (1822-26) (nec Schum. Mollusca, 1817).

Acolastus, Scudder, Rep. Peabody Ac. Sci. iv. p. 71 (1872); Wats. P. Z. S. 1893, p. 25.

This genus, containing a single species, is closely allied to *Proteides*, but differs *inter alia* in the shape of its wings and in the general style of coloration. There are no tufts of hair on the surface of either wing, no conspicuous spines on the under surface of the hind tarsi, nor any costal fold to the primaries of the male. The second median segment of the primaries is about twice the length of the first segment; the cell is

* From an examination of the type of *Thymeles euphronius*, Mab. (Le Nat. x. p. 181), kindly lent us by Dr. Staudinger, we find that it belongs without doubt to Hewitson's *Eudamus otriades*.

long, more than two-thirds the length of the costa, the upper discocellular short, the middle slightly shorter than the lower and in a straight line with it; the third median segment more than half the second, and with a recurrent nervule proceeding from near its middle. The secondaries have a well-defined anal lobe; the discocellular is evanescent, and there is no radial; the second median branch starts from before the end of the cell, the second median segment being considerably shorter than the first. The terminal joint of the palpi is short, small, and subconical; the club of the antennæ abruptly thickened and ending in a fine hook, the latter being considerably shorter than the rest of the club.

The range of the genus coincides with that of the species which follows.

1. **Acolastus amyntas.** (Tab. LXXVII. fig. 9 ♂.)

Papilio amyntas, Fabr. Syst. Ent. p. 533¹.

Hesperia amyntas, Plötz, Stett. ent. Zeit. 1882, p. 329².

Acolastus amyntas, Wats. P. Z. S. 1893, p. 25³.

Polygonus lividus, Hübn. Samml. ex. Schmett. ii. t. 144⁴.

Hesperia savignyi, Latr. Enc. Méth. ix. p. 741⁵.

Acolastus savignyi, Scudder, Rep. Peabody Ac. Sci. iv. p. 71⁶.

Alis nigricanti-brunneis purpureo micantibus; anticis maculis tribus semihyalinis notatis—una subquadrata cellulari, una rotunda infra eam, tertia subquadrata discali, punctis tribus subapicalibus quoque semihyalinis; posticis pallidioribus fasciis duabus indistinctis notatis, ciliis pallidis: subtus pallidioribus colore purpureo magis obvio, anticis maculis ut supra; posticis fasciis magis distinctis, plaga pallide fusca ad marginem internum, puncto nigricante ad basin infra venam costalem: palpis et pedibus griseis, corpore immaculato.

Hab. NORTH AMERICA, Florida⁶.—MEXICO, Mazatlan (*Forrer*), Jalisco (*Schumann*), Dos Arroyos (*H. H. Smith*), Jalapa (*W. Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, Polochic and Chisoy Valleys (*F. D. G. & O. S.*), San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Rio Sucio, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—SOUTH AMERICA, from Colombia to South Brazil; ANTILLES⁵.

A species of very wide range over nearly the whole of Tropical America, and apparently common everywhere. In the size and position of the hyaline spots of the primaries little variation can be traced; but the general colour of the hind wings beneath is in many specimens of a greyish tint, in others a purple shade is distinctly visible. The spot near the base of the secondaries beneath in the angle between the costal and subcostal nervures is very characteristic of the species.

The male genitalia have a long narrow tegumen with a lateral depressed point near the end on either side; the scaphium is as long as the tegumen and lies close to it on the underside, and has a granular patch at the end; the harpes have a deep notch on the dorsal edge, beyond which is a serrated lobe, the end being truncate. (See Tab. LXXVII. fig. 9.)

TELEGONUS.

Telegonus, Hübner, Verz. bek. Schmett. p. 104 (1816); Wats. P. Z. S. 1893, p. 25.

The well-known *T. anaphus* is the type of this genus, which contains eight or ten other species, all of them closely allied in structure, though differing considerably in coloration. The next genus, *Thymele*, in many respects resembles *Telegonus*, but the males of the latter may always be distinguished by the absence of a costal fold to the primaries.

The antennæ have a slightly thickened club, which is usually bent about the middle to a right angle and terminates in a sharp point. The terminal joint of the palpi is short and subconical, projecting slightly beyond the thickly-set scales of the second joint. The cell of the primaries is about two-thirds as long as the wing; the upper discocellular is very short, the middle and lower subequal and in a straight oblique line to the axis of the wing; the first median segment is about half the length of the second and equal to the third, to which a recurrent nervule is attached a little beyond the middle. The secondaries are slightly produced at the anal angle; the discocellulars very slender, the second median branch emitted just before the end of the cell. The hind tibiæ with two pairs of spurs and a dorsal crest of hairs.

Compared with *Acolastus*, *Telegonus* has a more slender club to the antennæ and the terminal hook is considerably longer.

This is a purely Neotropical genus of wide range—reaching Mexico, but not passing beyond to the northward.

a. No transverse diaphanous band on the primaries.

a'. No blue on the upperside of the body and base of the wings.

1. ***Telegonus anaphus*.** (Tab. LXXVII. fig. 10 ♂.)

Papilio anaphus, Cram. Pap. Ex. t. 178. f. F¹.

Telegonus anaphus, Butl. & Druce, P. Z. S. 1874, p. 367².

Æthilla anaphus, Plötz, Berl. ent. Zeitschr. 1882, p. 257³.

Alis brunneis; anticis fasciis indistinctis fuscis notatis; posticis ad angulum analem fulvis, fascia indistincta discali fusca: subtus ochraceo atomatis et fasciatis ut in pagina superiore; posticis ad angulum analem late fulvis.

♀ mari similis.

Hab. MEXICO, Cordova (*Höge, Rümeli*), Orizaba (*F. D. G.*), Atoyac (*H. H. Smith*), Sierra Madre de Tepic (*Richardson*), Jalisco (*Schumann*), Dos Arroyos (*H. H. Smith*), Oaxaca (*Fenochio*), Teapa (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Chiacam, Panima (*Champion*), San Gerónimo, Dueñas (*F. D. G. & O. S., Champion*), Pacific coast (*F. D. G. & O. S.*), Zapote (*Champion*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*²), Irazu, BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1893.

San Francisco, Caché (*Rogers*); PANAMA, Chiriqui, Calobre (*Arcé*).—SOUTH AMERICA generally from Colombia to South Brazil and Paraguay.

Mexican and Central-American specimens have rather less fulvous colour at the anal angle of the secondaries than Cramer's figure and specimens from the Lower Amazons valley; but the difference is hardly material, as the species enjoys an uninterrupted range over nearly the whole of Tropical America.

Telegonus anaphus may be distinguished from several other species having the same coloration by the absence of a tuft of yellow hairs near the base of the secondaries, as in *Typhedanus alladius*, and also by the absence of a costal fold in the primaries, as in *Thymele gallius*. These differences are strongly supported by the very different formation of the harpes of all these species, as will be seen by reference to the figures.

The male genitalia of *T. anaphus* are much like those of *Eudamus proteus*. The tegumen ends in two points; the scaphium is feeble; the harpes end in a blunt point; there is a distinct dorsal fissure, on each side of which the edge is slightly raised. (See Tab. LXXVII. fig. 10.)

2. *Telegonus ampyx*, sp. n. (Tab. LXXVII. figg. 11, 12 ♀.)

T. anapho similis, sed posticis ad angulum analem haud productis et minime fulvo tinctis, ciliis sordide albis: subtus posticis ad angulum analem fulvo-albidis fusco atomatis; anticis ad angulum analem vix pallidioribus; ano abdomine concolore haud fulvo.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*).

We have a single specimen of this species, probably a female, which was sent us from Yucatan by Dr. Gaumer. It has considerable outward resemblance to *T. anaphus*, but differs in several particulars. Its exact position can only be determined by dissections of the male.

3. *Telegonus hahneli*. (Tab. LXXVII. figg. 13, 14 ♂.)

Thymele cassander, Staud. Exot. Tagf. t. 98 (nec Fabr.)¹.

Æthilla hahneli, Staud. Exot. Tagf. p. 291².

Alis saturate brunneis; anticis fasciis duabus valde indistinctis exteriore submarginali fracta; posticis unicoloribus: subtus ut supra, anticis paulo pallidioribus et fascia submarginali magis distincta: capite et prothorace viridi lavatis.

Hab. COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*²), Volcan de Chiriqui (*Champion*).—VENEZUELA²; CUBA².

Through Dr. Staudinger's kindness we have a specimen of his *Æthilla hahneli* taken in Venezuela by the late Dr. Hahnel, after whom it was described¹. A specimen from Chiriqui, taken by Mr. Champion on the volcano at an altitude of about 2500 feet, and several from Costa Rica agree accurately with the Venezuela insect.

Dr. Staudinger placed this species in the genus *Æthilla*, but it does not possess the

long tuft of hair that proceeds from the proximal end of the hind tibiæ found in typical *Æthillæ*. Its general structure agrees in every respect with that of *Telegonus anaphus*, including the male genitalia, so that we have no hesitation in placing it in *Telegonus*.

According to specimens in the Herrich-Schäffer collection, now in the possession of Dr. Staudinger, *T. hahneli* occurs in Cuba².

b'. Upperside of the body and base of the wings blue.

a". Anal angle of secondaries scarcely projecting.

4. *Telegonus creteus*.

Papilio creteus, Cram. Pap. Ex. iii. t. 284. ff. C, D¹.

Telegonus creteus, Butl. & Druce, P. Z. S. 1874, p. 367².

Papilio parmenides, Cram. Pap. Ex. iv. t. 364. ff. E, F³.

Alis fuscis ad basin cum capite et thorace nitide cæruleis, ciliis omnibus fuscis: subtus fuscis, plaga magna discali ab angulo anali ad cellulam extensa alba, costæ parte basali quoque pallida, maculis indistinctis obscuris ad apicem; posticis obscure fusco bifasciatis: palpis albidis; pedibus ochraceis.

♀ mari similis; anticis interdum supra plaga alba discali notatis; colore albo quoque subtus magis extenso.

Hab. MEXICO, Campala in Durango (*Forrer*), Atoyac (*H. H. Smith*), Paso de San Juan (*W. Schaus*), Jalapa (*F. D. G. & W. Schaus*), Valladolid in Yucatan; BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic and Central valleys, San Gerónimo (*F. D. G. & O. S.*), Panima (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA (*Van Patten*²); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch, mus. Staudinger*), Calobre (*Arcé*).—COLOMBIA; ECUADOR; GUIANA^{1 3}; AMAZONS VALLEY; SOUTH-EAST BRAZIL.

There can be but little doubt that Cramer's *P. creteus*¹ is the male of the species he subsequently described as *P. parmenides*³, both types having been obtained in Surinam. Our specimens are from a wide area, extending from North-western Mexico to Brazil, and show several points of variation. Some females have a white spot on the upperside in the middle of the primaries, varying from a well-defined patch to an almost imperceptible one. The white, too, on the underside also varies in quantity and sometimes extends, chiefly in females, from the anal angle to the base of the costa; other specimens have the base of the costa of the secondaries white, and a whitish mark (clearly shown in both of Cramer's figures) towards the anal angle. All these points seem very unstable, and must be taken, we believe, as mere individual variations, and not as specific characters.

Though obtained by Forrer in the State of Durango, *T. creteus* is evidently a commoner species in Eastern Mexico, Jalapa, and its neighbourhood, having furnished many specimens to collectors in that district. In Eastern Guatemala it is equally common, but we are not aware of its occurrence on the Pacific side of the mountains.

The male genitalia closely resemble those of *T. apastus*.

5. **Telegonus chiriquensis.** (Tab. LXXVII. figg. 15, 16 ♂.)

Telegonus chiriquensis, Staud. Verh. z.-b. Ges. Wien, xxv. p. 111 (1875)¹; Exot. Tagf. p. 290, t. 98².

Eudamus meretrix, Hew. Ann. & Mag. N. H. ser. 4, xviii. p. 350 (Oct. 1876)³.

Alis nigricanti-brunneis ad basin viridi-cæruleo lavatis; anticis fasciis fuscis indistinctis tribus notatis, proxima a costa per cellulam, media ab angulo anali costam haud attingente, tertia subapicali: subtus fuscis; anticis maculis ut supra; posticis fasciis duabus, una cellulari, altera discali, et macula basali obscurioribus, area juxta marginem externum ochracecente.

♀ mari similis, anticis latioribus, posticis minus elongatis his area marginali subtus magis ochraceis.

Hab. MEXICO, Paso de San Juan (*W. Schaus*), Atoyac, Teapa (*H. H. Smith*); HONDURAS (*mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA from Colombia to Brazil; JAMAICA.

Dr. Staudinger has kindly lent us his type of this species, and also a male which he considered to belong to *T. elorus* of Hewitson, but we feel convinced that they represent sexes of one species. We are able to trace its range northward to the Mexican State of Vera Cruz and southward to Brazil, thus showing that it, like so many Hesperiidæ, spreads over nearly the whole of Tropical America. It also appears that the Ecuador insect described by Hewitson as *Eudamus meretrix*³ must be referred to *T. chiriquensis*, Dr. Staudinger's title having a slight priority.

T. chiriquensis may readily be distinguished from *T. elorus* by the bands of the primaries beneath; the outer and middle bands as seen in the former insect unite to form a continuous band more or less parallel to the outer margin.

We took our Jamaica specimen at Moneague, in the centre of the island, in 1861.

The male genitalia, like those of *T. creteus*, resemble those of *T. apastus*.

6. **Telegonus grullus.** (Tab. LXXVII. figg. 17, 18 ♂.)

Thymele grullus, Mab. Le Nat. x. p. 147 (1888)¹.

T. chiriquensi similis, sed posticis subtus ad marginem externum albidis nec ochraceis distinguendus.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).—COLOMBIA.

We have a specimen from the Cauca Valley, Colombia, which agrees with the type lent us by Dr. Staudinger. The species appears to be closely allied to *T. chiriquensis*, but may be readily distinguished by the white colour of the outer margin of the secondaries beneath.

7. **Telegonus alardus.** (Tab. LXXVII. fig. 19 ♂.)

Papilio alardus, Stoll, Suppl. Cram. t. 39. f. 7, 7 F¹.

Telegonus alardus, Butl. & Druce, P. Z. S. 1874, p. 367²; Wats. P. Z. S. 1893, p. 26³.

Eudamus alardus, Plötz, Stett. ent. Zeit. 1882, p. 90⁴.

Alis fusco-nigricantibus ad basin cum capite et thorace nitide viridi-cæruleis; posticarum ciliis albis: subtus

fuscis; anticis ad apicem obscure nebulosis, margine externo late albido-fusco atomato; posticis triente externa alba, fusco atomata; palpis albis fusco intermixtis; abdomine infra albo fasciato.

♀ mari similis, alis minus elongatis.

Hab. MEXICO, Cordova (*Rümelin*), Coatepec and Jalapa (*W. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Polochic, Chisoy, and Central valleys (*F. D. G. & O. S.*), San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); Costa Rica (*Van Patten*², *Carmiol*); PANAMA, Chiriqui (*Ribbe*), Calobre (*Arcé*), Bugaba (*Champion*), Line of Railway (*Ribbe*).—UPPER AMAZON; SOUTH-EAST BRAZIL.

This distinct species is far from uncommon in the eastern portions of Central America from the middle of the State of Vera Cruz southwards, and has a range in altitude extending from the sea-level up to about 4000 feet. So far as we know, it is not found in Western Mexico nor on the Pacific side of the mountains of Guatemala. Its nearest ally is *T. habana*, Lucas, from the island of Cuba, which has similar markings on the under surface of the wings, but the white margins are narrower and the wings generally are shorter and rounder, so that the two insects may readily be distinguished.

Stoll's description and figures were based upon Surinam specimens¹; with them and with an example from the Upper Amazons our Central American series agrees very closely, showing but little sign of individual variation.

The male genitalia resemble those of *T. apastus* and *Eudamus proteus*. (See Tab. LXXVII. fig. 19.)

b''. Anal angle of secondaries projecting.

8. *Telegonus consus*, sp. n. (Tab. LXXVII. figg. 20, 21, 22 ♂.)

Alis nigricanti-brunneis ad basin cum capite et corpore nitente viridi-cæruleis; posticis breve caudatis: subtus brunneis; anticis fascia lata submarginali obscuriore, area marginis externi aliquot dense ochraceo atomata, dimidio costæ proximo albido; posticis fasciis duabus, una discali altera costali obscuris, ad basin et ad marginem externum sparsim ochraceo atomatis; palpis et pectore ochraceo-albidis, illis pallidioribus.

Hab. MEXICO, Venta de Zopilote in Guerrero (*H. H. Smith*); GUATEMALA, Chisoy Valley, San Gerónimo (*F. D. G. & O. S.*).

We have several specimens of this distinct species, some of which formed part of the collection we made in Guatemala in 1861-62; others were recently obtained by Mr. Herbert Smith in the Mexican State of Guerrero.

We know of no species very nearly allied to it.

The male genitalia resemble those of *T. apastus*, but the harpes are not so pointed, and the dorsal edge beyond the fissure is finely serrate. (See Tab. LXXVII. fig. 22.)

b. A distinct diaphanous band on the primaries.

9. **Telegonus apastus.** (Tab. LXXVII. fig. 23 ♂.)

Papilio apastus, Cram. Pap. Ex. t. 111. ff. D, E¹.

Eudamus apastus, Plötz, Stett. ent. Zeit. 1881, p. 504².

Telegonus apastus, Wats. P. Z. S. 1893, p. 26³.

Alis nigricantibus ad basin viridi lavatis; anticis fascia obliqua per cellulam ad angulum analem transeunte hyalina venis quadripartita, puncto ejusdem coloris ad costam: subtus ut supra, fascia hyalina ad angulum analem albo marginata; posticis viridescentibus viridi-ochraceo atomatis, fasciis duabus indistinctis transvittatis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*).—GUIANA¹; AMAZONS VALLEY to SOUTH-EASTERN BRAZIL.

The wider band of the primaries and its less broken character distinguish this species to some extent from *Thymeles aulestes*, to which it bears a close outward resemblance; moreover, on the underside this band is bordered with white towards the anal angle, and the secondaries are less uniform, though the markings are not very definite.

The absence of a costal fold in the male *T. apastus*, and other structural characters, especially those of the male genitalia, at once distinguish it from *Thymeles aulestes*, with which species its range is practically coincident; but we trace *T. apastus* a little further north into the State of Vera Cruz.

The male genitalia much resemble those of *Eudamus proteus*; the tegumen is cleft, the harpes are pointed, and there is a distinct dorsal fissure. (See Tab. LXXVII. fig. 23.)

10. **Telegonus eudemus.** (Tab. LXXVII. figg. 24, 25 ♂.)

Thymeles eudemus, Mab. Le Nat. x. p. 170 (1888)¹.

Alis fusco-nigris vix viridescence tinctis: anticis fascia transversa semihyalina a costa ad angulum analem venis nigris sexpartita; posticis immaculatis: subtus ut supra paulo pallidioribus; anticis margine interno pallide fusco.

♀ mari similis, anticis subtus margine interno præcipue ad angulum analem albicantioribus.

Hab. MEXICO, Atoyac (*H. H. Smith*); PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

Dr. Staudinger has kindly lent us the type of this species. A female obtained in Mexico by Mr. Smith appears to belong to the same species, but the transverse band of the primaries is rather wider, becomes indistinct beyond the subcostal nervure, and near the anal angle beneath it is surrounded with white. With only two specimens before us, and no dissections, we cannot form a definite opinion as to the position of the species, which seems allied to *T. apastus*.

THYMELE.

Thymele, Fabricius, in Ill. Mag. f. Insekt. vi. p. 287 (1807) (partim); Wats. P. Z. S. 1893, p. 26.

This genus very closely resembles *Telegonus*, but the males may always be recognized by the presence of a costal fold to the primaries. The antennæ have a slender club, and the tapering end is doubled abruptly back just beyond the thickest part. The terminal joint of the palpi is short and projects slightly beyond the thickly-set scales of the second joint. The cell of the primaries is about two-thirds as long as the wing; the upper discocellular is very short, the middle and lower discocellulars subequal in an oblique line to the axis of the wing; the first median segment is about one-third the second, and about the same length as the third segment, from which proceeds a recurrent nervule a little beyond the middle. The secondaries are slightly produced at the anal angle; the middle and upper discocellulars are very slender; the second median branch is emitted just before and the subcostal branch a long way before the end of the cell. The hind tibiæ have two pairs of spurs and a well-developed dorsal crest of hairs.

T. fuligator is considered by recent writers the type of *Thymele*, though Fabricius placed a variety of species under this generic name.

The genus is purely Neotropical, and none of the species pass beyond the Mexican State of Vera Cruz.

a. Third median segment of the secondaries very short.

a'. Primaries with a transverse diaphanous band.

1. ***Thymele fuligator*.** (Tab. LXXVIII. fig. 1.)

Papilio fuligator, Walch, Naturf. vii. p. 115, t. 1. ff. 2 *a, b*¹; Cram. Pap. Ex. t. 284. ff. A, B².

Telegonus fulgurator, Butl. & Druce, P. Z. S. 1874, p. 366³.

Hesperia mercatus, Fabr. Ent. Syst. iii. p. 332⁴.

Eudamus mercatus, Plötz, Stett. ent. Zeit. 1881, p. 502⁵.

Papilio fulminator, Sepp, Surin. Vlind. i. t. 34⁶.

Eudamus misitra, Plötz, Stett. ent. Zeit. 1881, p. 502⁷?

Alis fusco-nigris ad basin cum capite et thorace nitide viridi-cyaneis; anticis fascia mediana transversa venis sexpartita et punctis quatuor subapicalibus semihyalinis: subtus fuscis; anticis ad basin nigricantioribus, costæ parte basali viridi-cyanea; posticis costæ dimidio basali albo, fasciis duabus indistinctis fuscis, una discali altera cellulari; palpis et thorace infra ochraceis, his pallidioribus; abdomine nigricante; plica costali obvia.

♀ mari similis; anticis latioribus, posticis minus elongatis, fascia mediana anticarum subtus ad angulum analem albo terminata.

Hab. MEXICO⁷, Tampico (*Richardson*), Misantla (*F. D. G.*), Cordova (*Höge*), Atoyac, Dos Arroyos, Teapa (*H. H. Smith*), Putla (*Rébouch*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Forests of Northern Vera Paz, Polochic and Chisoy Valleys, Dueñas (*F. D. G. & O. S.*), Cubilguitz, Chiacam, Panima, Las Mercedes, Zapote (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA, (*Van Patten*³), Rio Sucio, Caché

(*Rogers*); PANAMA, Chiriqui (*Arcé, Champion; Trötsch, in mus. Staudinger*), Veragua (*Arcé*), Bugaba (*Champion*), Lion Hill (*M^cLeannan*).—COLOMBIA; VENEZUELA; GUIANA² to PARAGUAY.

A well-known wide-ranging species, found over nearly the whole of Tropical America except the West-Indian Islands. It was first described by Walch in 1775, and though the figure accompanying his paper is a very bad one, there can be little doubt that it refers to the species described subsequently by Cramer under the same name, by Fabricius as *H. mercatus*, and by Sepp as *P. fulminator*—the figure by the last-named writer being evidently taken from a female specimen.

The neighbourhood of Tampico is the most northern record we have of this species, but it ranges to the considerable altitude of 5000 feet in the mountains of Mexico and Guatemala.

The male genitalia resemble to a great extent those of *Eudamus proteus* and *Telegonus anaphus*. The tegumen is cleft, the scaphium well developed, the harpes bluntly pointed, with a distinct dorsal fissure. (See Tab. LXXVIII. fig. 1.)

2. *Thymele enotrus*. (Tab. LXXVIII. fig. 2.)

Papilio enotrus, Cram. Pap. Ex. t. 364. ff. G, H¹.

Alis fusco-nigris vix purpureo lavatis, ad basin nitide cæruleis; anticis fascia transversa, venis quinquepartita et macula ultra eam semihyalinis, punctis subapicalibus nullis: subtus brunnescentioribus, anticis ad apicem et posticis sparsim ochraceo-atomatibus, plaga alba ad angulum anticarum analem et macula parva ochracea ad cellulæ posticarum finem; palpis et pectore saturate cinereis; plica costali obvia.

♀ mari similis, anticis latioribus, posticis minus elongatis, plaga costali nulla.

Hab. MEXICO, Paso de San Juan (*W. Schaus*); GUATEMALA, Panima (*Champion*); NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA, Amazons Valley, Trinidad I., Guiana, Brazil, Paraguay.

Cramer's figure¹ of this species is accurate, and we have no difficulty in identifying our specimens. One of the characters by which *T. enotrus* may be distinguished from its immediate allies (with the exception of *T. fulviluna*) is the absence of the subapical spots in the primaries. Within our region this species would appear to be rare; the only Mexican specimen we have seen is a male in Mr. Schaus's collection, and only three examples have reached us from other parts of Central America.

The male genitalia differ from those of *T. fulgerator* in having the points of the tegumen more depressed. The harpes are more elongated, and terminate in a blunt end, the upper corner of which is prolonged into a short erect spine; there is a small dorsal fissure. (See Tab. LXXVIII. fig. 2.)

3. *Thymele eniopeus*, sp. n. (Tab. LXXVIII. figg. 3, 4 ♂.)

Telegonus naxos, Druce, P. Z. S. 1876, p. 247¹.

T. enotro similis, sed anticis punctis subapicalibus quatuor aut tribus; posticis ad basin cæruleo minus lavatis,

magis elongatis fere breve caudatis : subtus plaga ad angulum anticarum nulla nec macula ad cellulæ posticarum finem ; palpis et pectore cervinis (nec cinereis) distinguendus.

Hab. NICARAGUA, Chontales (*Belt*) ; PANAMA, Chiriqui (*Trötsch*).—EASTERN PERU ¹.

Though we have compared this species with *T. enotrus*, to which it has a general resemblance, there are many points of difference by which it may be distinguished, as indicated above. We have as yet seen only two male examples, both from our country, and a female from the Ucayali River.

The nearest ally to this species is *T. naxos* of Hewitson, from Southern Brazil, from which it differs in the direction of the subapical spots, in the position of the small spot beyond the central band, in the colour of the abdomen and the hairs of the tibiæ (which are buff instead of brown), and in the absence of buff spots on the secondaries beneath.

The male genitalia resemble those of *T. fuligator*.

4. *Thymele fulviluna*. (Tab. LXXVIII. figg. 5, 6.)

Thymele fulviluna, Mab. Le Nat. x. p. 171, f. 9 (1888) ¹.

T. enotro similis, sed subtus posticis magis rufescentibus præcipue ad angulum analem, maculis magnis rufo-brunneis supra venam submedianam quoque notatis.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*).—AMAZONS VALLEY and SOUTH BRAZIL ¹.

The presence of this species in our country is proved by a specimen from Chiriqui, which we figure, sent to Dr. Staudinger by his correspondent Herr Trötsch, which has been kindly lent us with M. Mabilles's name *T. fulviluna* attached to it. It agrees with examples in our collection from the Upper Amazons and, according to Dr. Staudinger, with the types from Blumenau in South Brazil ¹. The species is obviously allied to *T. enotrus*, and, like that insect, has no hyaline subapical spots. The markings of the underside of the secondaries are sufficient to distinguish it.

5. *Thymele mephitis*. (Tab. LXXVIII. figg. 7, 8.)

Eudamus mephitis, Hew. Ann. & Mag. N. H. 1876, xviii. p. 349 ¹.

Eudamus dinora, Plötz, Stett. ent. Zeit. 1881, p. 502 ².

Alis fusco-nigris ; anticis fascia irregulari transversa a costæ medio ad angulum analem venis quinquepartita, macula parva ultra ramum medianum secundum, et quatuor punctis subapicalibus ad costam semihyalinis ; posticis ad marginem internum viridi lavatis, ciliis albidis : subtus anticis ut supra, posticis fascia indistincta discali nigricante, macula juxta eam albicante ad angulum analem.

Hab. PANAMA, Chiriqui ² (*Ribbe, in mus. Staudinger* ¹).—BRAZIL ?

We have taken our description from a typical specimen kindly lent us by Dr. Staudinger, none of our collectors having sent us examples. We have, however, three specimens from Southern Brazil which differ very slightly from the type. In them the portion of the median band next the costa is in line with the rest of the band,

whereas in the type this part is bifid and placed nearer the apex. The relationship of these two forms can only be determined by an examination of a series of each.

There can be little doubt that Plötz's *E. dinora*² refers to this species.

b'. Primaries without a diaphanous band.

6. *Thymele egregius*. (Tab. LXXVIII. fig. 9.)

Telegonus egregius, Butl. Trans. Ent. Soc. 1870, p. 494¹; Lep. Ex. p. 65, t. 25. f. 11².

Alis nigricante brunneis ad basin cum capite et corpore nitide viridi-cæruleis; anticis punctis duobus ad medium costæ, uno infra eos in cellula, maculisque duabus infra eam cum duabus subapicalibus semihyalinis; ciliis posticarum sordide albis: subtus brunneis ochraceo sparsim atomatis, maculis anticarum fusco circumcinctis; posticis fasciis duabus fuscis, una discali altera cellulari, area ad marginem externum ochraceo-brunnea; palpis albidis fusco intermixtis; plica costali parva.

Hab. MEXICO, Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic and Chisoy Valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).

Mr. Butler described this species from a specimen in the Kaden collection from an unknown locality¹. We now find that it is an inhabitant of our country, whence we have many specimens agreeing with the type. We notice great variation as regards the hyaline spots of the primaries, which in some examples are well marked, but in others almost entirely disappear. This variation appears to be in no way localized.

The male genitalia resemble those of *Eudamus simplicius*. The tegumen is cleft; the scaphium well developed; the harpes are rounded at the end, and a strong spine is recurved and overhangs the dorsal fissure. (See Tab. LXXVIII. fig. 9.)

7. *Thymele phalæcus*, sp. n. (Tab. LXXVIII. figg. 10, 11, 12 ♂.)

Alis brunneis fere unicoloribus; anticis punctis tribus subapicalibus linea recta obliqua positis semihyalinis; posticis angulo anali et ciliis pallide fulvis: subtus ut supra; anticis obsolete fusco notatis, margine interno ad angulum analem et maculis irregularibus subapicalibus juxta eum cervinis; posticis quoque fasciis duabus indistinctis fuscis, margine externo late fere ad angulum apicalem fulvo-fusco atomato; anticis plica costali obvia.

♀ mari similis, sed fascia indistincta semihyalina per cellulam transeunte, plica nulla.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*), Cordova (*Rümeli*), Teapa (*H. H. Smith*); GUATEMALA, Choctum, Polochic Valley (*F. D. G. & O. S.*), Zapote (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*); COSTA RICA, Irazu, Caché (*Rogers*).

This species closely resembles *Telegonus anaphus* in outward appearance, having the anal angle of the secondaries tipped with fulvous; the upper surface of the wings is more uniform, showing no indistinct markings; but the character by which it may at once be distinguished is the presence of three semihyaline subapical spots near the costa; moreover, the male has a costal fold. These differences are supported by the structure of the harpes of the male, as will be seen by comparing the figures.

T. phalæcus occurs with *Typhedanus alladius* and *Telegonus anaphus* in the State of Vera Cruz, and with the latter species in Central America as far south as Costa Rica; at Chiriqui *T. gallius* occurs.

The male genitalia have the tegumen and scaphium like those of *T. fuligator*, but the harpes are deeply cleft towards the dorsal end; the lower portion is slightly curved upwards and expanded towards the end; the upper portion is produced forwards and terminates in a rounded point. (See Tab. LXXVIII. fig. 12.)

8. *Thymele gallius*.

Telegonus gallius, Mab. Le Nat. x. p. 170, f. 5 (1888) ¹.

Alis brunneis sicut in *T. anapho* fusco obsolete notatis; anticis punctis tribus subapicalibus semihyalinis medio minimo et cellulae propiore; posticis angulo anali et ciliis juxta eum fulvis: subtus ut supra, anticis ad angulum analem unicoloribus; posticis ad angulum analem late fulvis, hoc colore introrsum bene definito; plica costali obvia.

♀ adhuc ignota.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger* ¹).

Dr. Staudinger has kindly submitted to us the type of this species, and it is the only specimen we have seen. It closely resembles *Thymele phalæcus* described above, but may be recognized by the subapical spots not being in a straight line, in the discal band of the primaries beneath being further from the anal angle, in the colour of this portion of the wing being the same as the rest, and by the sharp definition of the inner edge of the fulvous colour of the secondaries.

9. *Thymele chrysorrhœa*, sp. n. (Tab. LXXVIII. figg. 13, 14 ♂.)

Alis saturate brunneis; anticis obscure irregulariter fasciatis; posticis ad angulum analem et ciliis rufo aurantiis: subtus paullo pallidioribus; posticis ad angulum analem late aurantiis; plica costali obvia.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

We have a single example of this distinct species, taken by Mr. Champion on the Volcano of Chiriqui at an elevation of about 3000 feet. At first sight the species appears to be closely allied to *Æthilla lavochrea*, but the secondaries are more elongated and more rounded at the anal angle, and the orange colour spreads on to the wing beyond the fringe. Besides these differences the costa of the primaries has a distinct fold, showing that the relationship between these two insects is quite remote.

b. Third median segment of the secondaries much longer.

10. *Thymele aulestes*. (Tab. LXXVIII. fig. 15.)

Papilio aulestes, Cram. Pap. Ex. iii. t. 283. ff. E-G ¹.

Papilio narcosius, Stoll, Suppl. Cram. t. 39. f. 8 ².

Eudamus colossus, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 64 ³.

Alis nigris viridi-purpureo nitentibus; anticis ad basin, posticis fere omnino (regione costali et margine externo exceptis), capite et corpore toto obscure olivaceis; anticis fascia transversa venis quadripartita, puncto ultra eam semihyalinis: subtus fusco-nigricantibus, anticis purpureo, posticis olivaceo tinctis et squamis sparsis ochraceis notatis; palpis griseis, pedibus fuscis.

♀ mari similis.

Hab. BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Volcan de Santa Maria (*Richardson*), San Gerónimo (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Veraguas (*Arcé*).—COLOMBIA; VENEZUELA; AMAZONS VALLEY to PARAGUAY.

There can be little doubt that *P. aulestes* of Cramer¹ and *P. nicosius* of Stoll² both refer to one insect; they have the same origin, and the figures practically agree; nor does *Eudamus colossus* of Herrich-Schäffer³, which appears to have been founded upon a female (a specimen purporting to be the type is before us), differ in any important point.

T. aulestes now proves to have a very wide range, extending from British Honduras to Paraguay. We find it on both sides of the Cordillera of Guatemala, but it is not common anywhere in Central America.

The male genitalia have a cleft tegumen, the scaphium is feebly developed, the harpes are prolonged into a slightly upturned lobe, the dorsal edge of which is straight and finely serrate. (See Tab. LXXVIII. fig. 15.)

TELEMIADES.

Telemiades, Hübner, Verz. bek. Schm. p. 106 (1816); Wats. P. Z. S. 1893, p. 27.

Papilio avitus of Cramer is now considered the type of Hübner's genus *Telemiades*. With it Mr. Watson associates four other species, one of which (*T. amphion*), as well as the type, occurs within our limits; to these we add *Eudamus phasias*, Hew., and *T. megallus*, Mab. All these three species are found as far north as Southern Mexico, and thence spread southwards to the Amazons Valley and to Southern Brazil.

The antennæ of *T. avitus* have a moderate club, which is abruptly hooked, the terminal portion of the club being slender and rather shorter than the remaining part of it. The middle joint of the palpi is covered with compact scales, the third joint appearing beyond as a short, obtuse, slightly deflected knob. The primaries have a costal fold, the cell is about two-thirds the length of the wing; the third subcostal segment is longer than either the second or the fourth; the lower and middle discocellulars are in a line, the former being slightly longer than the latter, the upper discocellular is short but distinct; the first median segment is shorter than the second, and the latter more than double the third segment; a faint recurrent nervule starts from close to the end of the cell. The secondaries are evenly rounded and slightly produced at the anal angle; the discocellulars are very feeble, and the lower meets the median close to the origin of the second branch; there is a faint indication of a radial; second subcostal segment short, about one-fourth the first segment.

Compared with the last genus (*Thymele*), *Telemiades* differs in having the second median branch of the secondaries starting a little before instead of close to the end of the cell. *Telemiades* also resembles *Nascus*, but the terminal joint of the palpi is more prominent.

T. amphion is aberrant, the body being less robust, the secondaries less produced, and the discocellulars of the primaries less oblique.

1. *Telemiades avitus*. (Tab. LXXVIII. fig. 16 ♂).

Papilio avitus, Cram. Pap. Ex. t. 354. f. D (nec E)¹.

Telemiades avitus, Plötz, Berl. ent. Zeitschr. 1882, p. 73²; Wats. P. Z. S. 1893, p. 27³.

Alis fulvo-brunneis; anticis macula mediana trifida, parte cellulari extrorsum profunde indentata, parte infima subquadrata, et punctis tribus subæqualibus subapicalibus ochraceo-hyalinis; posticis maculis fuscis indistincte notatis: subtus brunnescentioribus; anticis ut supra; posticis fasciis duabus indistinctis transversis notatis; palpis fuscescentibus.

Hab. MEXICO, Atoyac (*H. H. Smith*), Coatepec, Paso de San Juan (*W. Schaus*).—AMAZONS VALLEY; GUIANA¹; BRAZIL.

We do not feel absolutely sure that Cramer's name applies to this species, but on the whole his figure agrees better with it than with any of the allied forms. The small spot between the median nervure and its second branch in the figure is situated rather farther from the other two spots than in any of the specimens before us; otherwise the figure is fairly accurate.

The range of this species is somewhat remarkable. We have a good series of specimens from Atoyac, in the State of Vera Cruz, all captured by Mr. Smith in the month of April, and Mr. Schaus also found it in the same district; but we have no trace of it from any other part of Central America, nor do we meet with it again till we come to the lower portion of the valley of the Amazons. Cramer's type came from Guiana, and we have one specimen from Rio Janeiro.

The male genitalia have a truncate tegumen, the corners slightly projecting, and there is a spine on either side near the base; the scaphium is well developed, the ends being granulated on the outer surface; the harpes terminate in an upturned spine, the edge of which is finely serrate; there are also one or two teeth on the dorsal edge. (See Tab. LXXVIII. fig. 16.)

2. *Telemiades phasias*. (Tab. LXXVIII. fig. 17.)

Eudamus phasias, Hew. Descr. Hesp. p. 17 (1867)¹.

Alis ochraceo-brunneis; anticis maculis fuscis undique notatis, punctis tribus subapicalibus semihyalinis; posticis quoque fusco punctatis: subtus umbrino-brunneis fere unicoloribus, anticis punctis semihyalinis ut supra, plica costali obvia.

♀ adhuc ignota.

Hab. MEXICO, Coatepec, Paso de San Juan (*Schaus*), Atoyac (*H. H. Smith*); NICARAGUA, Chontales (*Belt*).—AMAZONS VALLEY¹.

This species resembles Cramer's figure (tab. 354. f. E), which, as well as fig. D, stands

as *Papilio avitus*, but which clearly belongs to a different insect. We had only one male specimen from our country; but Mr. Schaus's collection contains three males, all from the State of Vera Cruz. These agree closely with others from Para and Santarem taken by Mr. Bates, and with Hewitson's type of *E. phasias* in the British Museum.

The male genitalia have a pointed tegumen cleft at the end, and with a lobe on either side of the base; the scaphium is well developed and granular at the end; the harpes are rounded at the end, with a lobe in the middle, and a recurved spine on the dorsal edge; the middle of the dorsal edge is serrate and also beyond the spine. (See Tab. LXXVIII. fig. 17.)

3. *Telemiades megallus*. (Tab. LXXIX. figg. 1, 2 ♂.)

Telemiades megallus, Mab. Le Nat. x. p. 221. f. 3* (1888)¹.

Alis saturate brunneis, fasciis duabus communibus valde irregularibus, una submarginali altera per cellulas, nigricanti-brunneis; anticis punctis tribus subapicalibus medio paulo proximo: subtus ut supra, alis vix pallidioribus et fasciis magis distinctis sed maculosis; posticis triente anali grisea maculis quatuor fasciæ submarginalis continente; palpis griseis, abdomine infra griseo, plica costali obvia.

♀ mari similis, sed major, alis magis abbreviatis et plica costali nulla.

Hab. MEXICO, Atoyac (*H. H. Smith*); PANAMA, Chiriqui (*mus. Staudinger*).—WESTERN COLOMBIA¹.

We have two females of this species, sent us by Mr. Herbert Smith, which agree with a male from Chiriqui lent us by Dr. Staudinger and named from the type of *Telemiades megallus*, which was taken on the San Juan River in Western Colombia.

The species differs from the other members of the genus which we possess in having the outer third of the secondaries beneath greyish blue—a character often found in members of the Section B of the Hesperinae. The cell is long, showing its position here, and there is a distinct costal fold to the primaries of the male.

4. *Telemiades amphion*.

Proteides amphion, Geyer in Hübn. Zutr. ex. Schmett. iv. p. 12, ff. 631, 632¹; Plötz, Berl. ent. Zeitschr. 1882, p. 71².

Telemiades amphion, Wats. P.Z. S. 1893, p. 27³.

Alis murinis; anticis maculis quatuor medianis fusco anguste limbatis, una costali, una cellulari (maxima), tertia infra eam, quarta parva inter venam medianam et ramum suum secundum, hyalinis, punctis tribus subapicalibus (medio minimo) maculis distinctis, alteris submarginalibus, et una ad medium marginis interni fuscis; posticis fasciis duabus indistinctis fuscis, una cellulari altera discali: subtus fere omnino ut supra, paulo pallidioribus, plica costali angusta.

♀ mari similis, sed plica costali nulla.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*), Jalapa (*W. Schaus*); GUATEMALA, Zapote (*Champion*); HONDURAS (*Dyson*); NICARAGUA, Chontales (*Belt*); PANAMA, Calobre (*Arcé*), Lion Hill (*M'Leannan*).—SOUTH AMERICA, Guiana, Amazons Valley.

* Figures 3 and 4 seem to have been transposed in this paper. Fig. 3 agrees with the description of *T. megallus*, whilst fig. 4 does not.

The types of this species are said to have come from the West Indies, but were probably from the northern part of the South-American continent, whence we have a series of specimens agreeing well with Geyer's excellent figure¹. From these our Mexican and Central-American examples show no tangible differences. Some variation is observable in the hyaline spots of the primaries, the costal spot is occasionally wholly wanting, and the subapical spots are sometimes nearly equal in size instead of the middle one being the smallest.

The male genitalia resemble those of *T. avitus*, but the harpes are more rounded and the recurved spine shorter.

DYSCOPHELLUS *.

Dyscophus, Burmeister, Descr. Phys. Rep. Arg. v. p. 291 (1878) (nec Grand. 1872; nec Sauss. 1874); Wats. P. Z. S. 1893, p. 27.

Netrocoryne (partim), Plötz, Berl. ent. Zeitschr. 1882, p. 76.

This genus was based upon Cramer's *Papilio sebalus*, of which *P. crameri*, Latr., is the female, a South-American insect, the only congeneric species known to us being *Dyscophellus doriscus*, which occurs in the State of Panama.

The antennæ in *Dyscophellus* have the terminal attenuated portion of the club not longer than the remaining part of it; the outer and inner margins of the primaries are subequal; the cell of the primaries is more than two-thirds the length of the costa, the middle discocellular is shorter than the lower and makes an obtuse angle with it, the second median segment is about three times as long as the third, and there is a recurrent nervule from the distal end of the latter; the discocellulars of the secondaries form a convex curve, and the lower discocellular meets the median a little beyond the second branch, the radial is faintly developed.

The palpi of this and the two following genera have a short nearly erect terminal joint, which just appears beyond the dense scales of the second joint. All three genera have a costal fold to the primaries of the males.

1. *Dyscophellus doriscus*. (Tab. LXXVIII. fig. 18 ♂.)

Myscelus sebalus, Westw. in Doubl. & Hew. Gen. Diurn. Lep. t. 78. f. 6 (nec Cram.)¹.

Eudamus doriscus, Hew. Descr. Hesp. p. 13 (April 1867)².

Dyscophus doriscus, Wats. P. Z. S. 1893, p. 27³.

Netrocoryne cæcutiens, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 69 (1868)⁴.

Eudamus porcius, Feld. Wien. ent. Mon. vi. p. 182 (1862)⁵.

Netrocoryne porcius, Plötz, Berl. ent. Zeitschr. 1882, p. 77⁶.

Alis fulvis; anticis margine externo, posticis regione costali fuscis; anticis macula cellulari, serie submarginali punctis parvis composita semihyalinis, nigricante circumcinctis, maculis duabus nigris supra medium venæ submedianæ posticis, macula cellulari aliisque discalibus fusciscentibus: subtus fusciscentioribus.

♀ alis obscurioribus maculis, omnibus majoribus, interne hyalinis, margine fusco cinctis.

* DYSCOPHELLUS vice DYSCOPHUS preoccupied in Reptilia and Orthoptera.

Hab. PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Veraguas (*Arcé*).—SOUTH AMERICA, Venezuela to South Brazil.

Dr. Staudinger has kindly lent us a male specimen of this species under the name of *Netrocoryne cæcutiens* of Herrich-Schäffer, having compared it with the type in his possession. With it he sends a specimen named *Eudamus doriscus*, Hew., which we have no hesitation in pronouncing a female of *N. cæcutiens*. Hewitson's title has slight priority, and must be employed. It has for its basis his own excellent figure in the 'Genera of Diurnal Lepidoptera,' where, however, it is wrongly named *Myscelus sebalus* (Cramer). It is possible that Felder's *Eudamus porcius*, from the Rio Negro, refers to the same insect, but we do not feel sufficiently confident on this point to use his name. Should, however, it prove to be the same, which is the opinion of Plötz⁶, the species will stand as *Dyscophellus porcius* (Feld.).

Dyscophellus doriscus has not yet been found in our country beyond the State of Panama, but it enjoys a wide range on the southern continent.

The genitalia of the male have a long tegumen with a single terminal blunt point, the harpes are simple lobes with rounded slightly serrate ends, the ventral edge is slightly concave near the end. (See Tab. LXXVIII. fig. 18.)

NASCUS.

Nascus, Watson, P. Z. S. 1893, p. 28.

Telemiades (partim), Plötz, Berl. ent. Zeitschr. 1882, p. 72.

Mr. Watson separated this genus, making *Papilio phocus*, Cramer, as the type, and associated with it five other species, all of them belonging to the South-American continent. To these we now add two others. Five species occur within our limits, of which *N. phocus* and *N. cæpio* range as far north as Guatemala.

Nascus differs from *Dyscophellus* in having the outer margin of the primaries longer than the inner margin; the lower and middle discocellulars of the primaries are subequal and in a straight line, which lies obliquely to the axis of the wing; the recurrent nervule starts from the third median segment before the end of the cell. There is no trace of a radial to the secondaries.

1. *Nascus phocus*. (Tab. LXXVIII. fig. 19.)

Papilio phocus, Cram. Pap. Ex. t. 162. f. F¹.

Telemiades phocus, Plötz, Berl. ent. Zeitschr. 1882, p. 75².

Nascus phocus, Wats. P. Z. S. 1893, p. 28³.

Eudamus pherenice, Hew. Descr. Hesp. p. 15 (1867)⁴; Exot. Butt., Eudamus, t. i. f. 1⁵.

Telemiades pherenice, Plötz, Berl. ent. Zeitschr. 1882, p. 75⁶.

Alis fulvo-brunneis; anticis plaga mediana venis quadripartita semihyalina maculisque sex subapicalibus serie arcuata positis (quarta a costa maxima) ejusdem coloris; posticis fasciis duabus fuscis transvittatis, una

per cellulam altera discali: subtus fuscis, anticis ad basin posticis plerumque obscure ochraceo lavatis, his transfasciatis sicut in pagina superiore.

♀ alis fuscis; anticis ad basin posticis plerumque pallidioribus, anticis maculis undecem notatis, quatuor in linea transversa per cellulam, quinque inæqualibus subapicalibus (quarta a costa maxima) et duabus submarginalibus, una venæ medianæ utrinque semihyalinis; posticis fasciis duabus transversis fuscis indistincte notatis: subtus ut supra, anticis ad basin posticis dimidio basali ochraceis, ciliis inter venas albis.

Hab. MEXICO, Paso de San Juan in Vera Cruz (*W. Schaus*); GUATEMALA, Chisoy Valley (*F. D. G. & O. S.*); HONDURAS (*Dyson, Wittkügel in mus. Staudinger*); COSTA RICA (*Van Patten*); PANAMA, Chiriqui (*Ribbe*), Volcan de Chiriqui (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA generally, from Colombia and Guiana to South Brazil and Paraguay.

There can be little doubt that Hewitson's *Eudamus pherenice* is the female of Cramer's *Papilio phocus*, though the distribution of the hyaline spots on the primaries is somewhat different; those, however, which form the subapical series are alike in both insects. Moreover, the two occur together throughout their range and are certainly of opposite sex.

The species seems subject to some variation, chiefly as regards the colour of the wings beneath. Mr. Schaus's specimens are very pale ochraceous in this particular part, and Honduras specimens are rather paler than others from Guatemala, but they agree fairly well with a Paraguay example, and the difference is too slight to be material.

The genitalia of the male resemble those of *Dyscophellus doriscus* so far as regards the tegumen, but the harpes have two separate patches of serrations on the dorsal edge, with an interval in the middle between them. (See Tab. LXXVIII. fig. 19.)

2. *Nascus eugamon*, sp. n. (Tab. LXXVIII. figg. 20, 21 ♂.)

N. phoco similis et forsan ejusdem speciei varietas, sed alis obscurioribus maculis semihyalinis, primariorum subapicalibus subæqualibus approximatis venis tantum divisis, posticis unicoloribus haud transfasciatis distinguendus.

♀ adhuc ignota.

Hab. PANAMA, Lion Hill Station (*M. Leannan*).

We are in some doubt whether the single male specimen we possess from Panama should be treated as a distinct species or as a variety of *N. phocus*. The arrangement of the spots on the primaries seems to justify its separation. The five spots forming the subapical series lie close together in a uniform curve, are all elongated, and the fourth from the costa is only slightly larger than the rest; the spot beyond the second branch of the median nervure is thrust further in between the adjoining ones, and the spot below the first branch is altogether wanting. The secondaries above have no transverse bands, and beneath the inner one is much abbreviated.

3. **Nascus evathlus.** (Tab. LXXVIII. figg. 22, 23 ♀.)

Eudamus cephisus, Hew. Ann. & Mag. Nat. Hist. 1876, xviii. p. 351 (nec *E. cephise*, Herr.-Schäff.)¹.

Telegonus evathlus, Mab. Le Nat. x. p. 170, f. 3 (1888)².

Alis brunneis; anticis fascia recta quadripartita a costa per cellulam ad angulum analem, puncto extra eam, aliisque quatuor subapicalibus: subtus maculis ut supra; anticis ad basin posticis dimidio proximo ochraceis, extrorsum gradatim evanescente; palpis et corpore subtus ochraceis.

Hab. PANAMA, Chiriqui² (*Ribbe*¹).—AMAZONS VALLEY and NORTH BRAZIL.

Dr. Staudinger has kindly lent us the types of *E. cephisus*, Hew., and *E. evathlus*, Mab., and there can be no doubt they belong to one and the same species; this had better bear Mons. Mabille's name, as Hewitson's, though the older, is too much like Herrich-Schäffer's *Eudamus cephise*, and its adoption would be confusing. It is somewhat questionable whether this insect is distinct from *Papilio broteas* of Cramer; but, besides being considerably smaller, the yellow colour of the underside of the wings blends gradually with the brown of the outer portion, whereas in the larger form the limits of the two colours are sharply defined.

We only know females of these forms at present.

4. **Nascus cæpio.** (Tab. LXXIX. figg. 3, 4, 5 ♂.)

Telemiades cæpio, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 68¹; Plötz, Berl. ent. Zeitschr. 1882, p. 74².

N. cephise similis, sed plaga magna mediana minus integra, nigricanti-fusco marginata, maculis subapicalibus linea arcuata regulari positus: subtus ad basin magis ochraceis maculis discalibus absentibus: palpis et pectore ochraceis.

Hab. MEXICO (*mus. Staudinger*); GUATEMALA, Panima (*Champion*); PANAMA, Chiriqui (*Arcé*).—COLOMBIA; VENEZUELA²; AMAZONS VALLEY; BRAZIL.

Dr. Staudinger has lent us a specimen of this species from Mexico, which he has compared with Herrich-Schäffer's type now in his possession. This Mexican specimen, however, does not quite agree with the example described by Mr. Butler as *Telegonus cæpio*, which was formerly in the Kaden collection, and in all probability named by Herrich-Schäffer himself.

The species is exceedingly closely allied to *N. cephise* in outward appearance, but the median band of the primaries is, perhaps, less compact, and the subapical spots are placed side by side in a regular curve from the costa.

We have not seen many specimens of this species, which, however, appears to have a wide range extending from Guatemala southwards to Brazil.

The genitalia of the male differ considerably from those of *N. cephise*; the tegumen has a short slightly depressed point; the harpes are quite simple lobes without fissures or serrations. (See Tab. LXXIX. fig. 5.)

5. **Nascus advena.** (Tab. LXXIX. figg. 6, 7 ♂.)

Telegonus advena, Mab. Le Nat. xi. p. 59, f. 1 (1889) ¹.

N. cephise proximus, anticis magis acutis, punctis subapicalibus tribus, duabus costalibus approximatis, tertia remota, plaga mediana venis tantum divisa, distinguendus; plica costali obvia.

♀ mari similis, alis omnibus magis rotundatis et plica nulla.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*mus. Staudinger* ¹), Bugaba (*Champion*).

Dr. Staudinger has kindly lent us two female specimens of this species, one of them being M. Mabilles type of *Telegonus advena* ¹, and a male from Chiriqui as *Eudamus cephise*, Herr.-Schäff, which is a species of *Nascus*. The latter differs from specimens of *N. cephise* in our collection in having the diaphanous patch on the primaries more concentrated and the subapical spots differently placed. With these we associate a male from Nicaragua and a female taken by Mr. Champion at Bugaba. The subapical spots of the primaries in the type are arranged as described above, but Dr. Staudinger's second female specimen has five spots instead of three—an extra one on the costa and a small one next the outermost of the series. The others are placed as in the type, and their position is very different from those of either *N. cephise* or *N. cæpio*. The secondaries have faint spots on the underside of the disc near the anal angle as in *N. cephise*.

BUNGALOTIS.

Bungalotis, Watson, P. Z. S. 1893, p. 28.

Telegonus (partim), Plötz, Berl. ent. Zeitschr. 1882, p. 77.

Papilio midas of Cramer is the type of this genus, which, according to Mr. Watson, contains nine species, all of them South American. To these we add *Telegonus dexo*, Mabilles, which occurs with six others within the limits of our country.

The terminal attenuated portion of the club of the antennæ is very long, being almost double the length of the rest of the club; the palpi have the terminal joint almost entirely concealed by the densely set scales of the second joint. The inner margin of the primaries is longer than the outer, the cell is more than two-thirds the length of the costa; the discocellulars are in a line, are subequal, and stand more nearly at right angles to the axis of the wing than in *Nascus*, the recurrent nervule starts from the third median segment some way before the end of the cell; on the secondaries the radial is distinctly though feebly developed, the third median segment is comparatively long, the discocellular meeting the median some way beyond the second branch. In all the species except *B. midas* the lower discocellular of the primaries is rather longer than the middle discocellular, and the two do not lie in so straight a line as in the type.

1. *Bungalotis midas*. (Tab. LXXIX. fig. 8 ♂.)

Papilio midas, Cram. Pap. Ex. t. 63. fig. G¹.

Telegonus midas, Plötz, Berl. ent. Zeitschr. 1882, p. 78².

Bungalotis midas, Wats. P. Z. S. 1893, p. 28³.

Alis fulvo-ochraceis; anticis macula indistincta ad cellulæ finem fascia valde irregulari submarginali et altera arcuata subapicali pallide fuscis; posticis area costali nigra, plaga magna mediana certa luce vivide cyanea, macula cellulari alterisque submarginalibus pallide fuscis: subtus omnino saturatoribus, area interna anticarum tantum pallida, maculis et fasciis omnibus fuscis distinctioribus; corpore toto et capite fulvis; area infra oculos alba.

♀ mari similis, sed obscurior, maculis omnibus supra et subtus multo distinctioribus, plaga posticarum cyanea absente.

Hab. HONDURAS (*mus. Staudinger*).—SOUTH AMERICA, from Colombia to GUIANA¹ and South Brazil.

This is one of the most striking species of the Hesperiidæ of South America. The vivid blue spot near the middle of the costa of the secondaries is quite a peculiar feature, not, so far as we know, found in any other member of the family. The species has a wide range over the greater part of South America. Our authority for including it in the Central-American fauna rests on a single male specimen captured by one of Dr. Staudinger's collectors in Honduras.

The male genitalia have a highly chitinized tegumen, the end consisting of a strong claw; the scaphium is also highly developed; the harpes are long, with a wide excision on the dorsal edge, the termination expanding like a paddle with a square end. (See Tab. LXXIX. fig. 8.)

2. *Bungalotis astylos*.

Papilio astylos, Cram. Pap. Ex. t. 283. ff. A, B¹.

Telegonus astylos, Plötz, Berl. ent. Zeitschr. 1882, p. 81².

Bungalotis astylos, Wats. P. Z. S. 1893, p. 28³.

Alis brunneis; anticis fascia mediana fere integra et macula inter venam medianam et ramum suum secundum eam attingente semihyalinis, maculis quibusdam obsoletis ad apicem: subtus paulo pallidioribus; anticis plaga indistincta fulva ad angulum analem; posticis fasciis indistinctis duabus transversis maculosis griseis notatis.

♂ adhuc ignotus.

Hab. GUATEMALA, Las Mercedes (*Champion*); PANAMA, Chiriqui (*Ribbe*).—AMAZONS VALLEY and GUIANA¹.

Mr. Champion captured a specimen of this well-marked species during his visit to Guatemala, and we have another from Chiriqui, and these are all the specimens we know of from our country, the species being by no means common in South America.

All the specimens that we have seen appear to be females, and the male is at present unknown, unless that sex is represented by another supposed species and the relationship not yet detected.

3. *Bungalotis ramusis*. (Tab. LXXIX. figg. 9, 10, 11 ♂; 12 ♀.)

Papilio ramusis, Cr. Pap. Ex. t. 342. fig. C¹.

Bungalotis ramusis, Wats. P. Z. S. 1893, p. 28².

Eudamus astrapæus, Hew. Ann. Mag. Nat. Hist. 1876, xviii. p. 348³.

Alis fulvo-brunneis; anticis macula cellulari aliisque in paribus submarginalibus duabus interioribus supra venam submedianam fusco-nigricantibus; posticis ad costam fuscis, macula cellulari et serie submarginali coloris ejusdem: subtus fuscescentioribus; anticis immaculatis; posticarum maculis vix obviis.

♀ fuscescentior, maculis omnibus majoribus, plerumque hyalinis et fusco circumcinctis.

Hab. PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*).—PERU and AMAZONS VALLEY³.

We have again to thank Dr. Staudinger for the loan of a male specimen from Chiriqui, bearing Hewitson's name *Eudamus astrapæus*, which was doubtless determined by comparison with the male Peruvian types of the species². Hewitson's description of the female was based upon a specimen in his own collection obtained by Bates at Villa Nova, in the Amazons Valley. We also have two males from the same collection, from Tapajos and Para respectively, and these agree closely with the Chiriqui insects.

It now appears that this species should bear Cramer's name, *P. ramusis*, based upon a female specimen. We have no examples of that sex from Central America, but two from the Amazons Valley agree closely with Cramer's figure.

The male genitalia have the tegumen ending in a long slightly decurved rod, the harpes are simple lobes drawn to a point, the dorsal edge being nearly straight. (See Tab. LXXIX. fig. 11.)

4. *Bungalotis heras*. (Tab. LXXIX. figg. 16, 17, 18 ♂.)

Telegonus heras, Mab. Le Nat. x. p. 169, f. 1 (1888)¹.

♂. Alis fulvo-brunneis, anticis ad marginem externum obscurioribus plaga mediana trifida ochraceo-hyalina nigro circumcincta, punctis duobus infra eam maculis duabus subapicalibus quoque semihyalinis; posticis area costali et margine externo fuscis, macula elongata cellulari et serie discali lineam arcuatam formante fusco nigricantibus: subtus fuscescentioribus, anticis ut supra, posticis maculis omnibus interne fusco ochraceis, maculis duabus similibus subcostalibus.

Hab. PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Lion Hill (*M^cLeannan*).—VENEZUELA¹; ECUADOR.

This species was described from a specimen sent from Puerto Cabello, in Venezuela, now in Dr. Staudinger's collection¹. We have to thank him for the loan of a male from Chiriqui, doubtless compared with the type; this agrees with examples in our collection from the State of Panama.

Bungalotis heras resembles in coloration *Nascus euribates*, but is of a darker brown colour, and has wider less elongated wings, besides other differences.

There are two specimens, a male and a female, in the British Museum, from Ecuador. The male genitalia have a rather short tegumen, ending in a single decurved point;

the harpes end in a sharp slightly upturned point, the upper edge of which is serrate, in the middle of the dorsal edge there is a prominent thorn-like spine. (See Tab. LXXIX. fig. 18.)

5. *Bungalotis erythus*.

Papilio erythus, Cram. Pap. Ex. t. 59. f. G¹.

Telegonus erythus, Plötz, Berl. ent. Zeitschr. 1882, p. 80².

Bungalotis erythus, Wats. P. Z. S. 1893, p. 28³.

♀. Alis brunneis; anticis maculis octo notatis, una cellulari, duabus inter venam submedianam et ramum medianum primum, una utrinque rami mediani secundi et tribus subapicalibus semihyalinis fusco indistincte circumcinctis; posticis maculis sex notatis, una magna cellulari, una utrinque venæ submediæ, una utrinque rami mediani secundi et una inter venam subcostalem et ramum suum: subtus ut supra, sed alis pallidioribus; posticis punctis duobus subcostalibus et uno infra ramum medianum albo nigro cinctis.

♂ nobis ignotus.

Hab. NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA, AMAZONS VALLEY, and GUIANA¹.

We have a single female specimen of this species from Belt's collection, which agrees accurately with Cramer's figure, and with a specimen of the same sex taken by Mr. Wallace at Para. The large size and wide distribution of the spots over the surface of the wings render this species obviously distinct; but as yet we have no clue to the male, which from analogy ought to be less spotted and with more produced wings.

6. *Bungalotis dexo*. (Tab. LXXIX. figg. 13, 14 ♂; 15 ♀.)

Telegonus dexo, Mab. Le Nat. x. p. 169, f. 2 (1888)¹.

Alis rufo-brunneis, supra fere unicoloribus, subtus fusciscentioribus immaculatis.

♀ mari similis, sed alis obscurioribus, macula cellulari aliisque discalibus fere obsoletis; posticis punctis duobus obsoletis, uno ramum medianum secundum utrinque: subtus ut supra, posticis punctis tribus cellularibus, tribus subcostalibus et quatuor discalibus sordide albis.

Hab. MEXICO, Atoyac (*H. H. Smith*); HONDURAS (*Wittkügel*, in *mus. Staudinger*); PANAMA, Chiriqui (*Ribbe*¹).

A single female specimen, taken by Mr. H. H. Smith in April at Atoyac, in the State of Vera Cruz, agrees accurately with the type of the female from Chiriqui, kindly lent us with two males by Dr. Staudinger. We have no further knowledge of the species, which is distinguished by its sombre, almost spotless, wings.

7. *Bungalotis salatis*. (Tab. LXXX. fig. 1.)

Papilio salatis, Cram. Pap. Ex. t. 393. f. E¹.

Telegonus salatis, Plötz, Berl. ent. Zeitschr. 1882, p. 79².

Bungalotis salatis, Wats. P. Z. S. 1893, p. 28³.

Alis saturate fulvis; anticis macula cellulari aliisque indistinctis submarginalibus nigricantibus, puncto semi-

hyalino nigro-circumcincto ad apicem; posticis area costali, macula cellulari aliisque sex discalibus serie arcuata obscure fusco-nigris: subtus ut supra, sed obscurior; posticis maculis medialiter pallidis, aliis duabus subcostalibus.

♀ alis brunneis; anticis maculis omnibus multo majoribus semihyalinis et nigro cinctis, posticis quoque maculis discalibus quibusdam medialiter semihyalinis.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Volcan de Chiriqui (*Trötsch*), Bugaba (*Champion*).—AMAZONS VALLEY and GUIANA.

We have several specimens of this insect before us, including a male and female lent us by Dr. Staudinger. The males agree fairly well with Cramer's figure, and with a specimen from the Tapajos River from Bates's collection. The northern limit of the species extends to Chontales, whence we have two female examples from Belt's collection. The species most nearly allied to *B. salatis* is *B. sebrus* of Felder, which differs in the distribution of the spots of the primaries in both sexes.

The male genitalia have a peculiar tegumen ending in a short decurved spine, from the upperside of which arises a blunt projection; the scaphium is well developed; the harpes elongated, slightly upturned lobes with rounded ends. (See Tab. LXXX. fig. 1.)

CECROPTERUS.

Cecrops, Hübner, Verz. bek. Schmett. p. 103 (1816) (nec Leach, 1813).

Cecropterus, Herrich-Schäffer, Prodr. Syst. Lep. iii. p. 45 (1869); Plötz, Berl. ent. Zeitschr. 1882, p. 260; Watson, P. Z. S. 1893, p. 31.

The name *Cecropterus* was proposed by Herrich-Schäffer in 1869 as a substitute for Hübner's *Cecrops* (preoccupied by Leach in Crustacea), and the type is now considered to be *C. zarex*, Hübn.

The members of the genus are distributed over the whole of Tropical America with the exception of the West-Indian Islands, but authorities differ as to the number of species. Plötz admits eleven and Mr. Watson ten. We, with an extensive series before us, can only distinguish eight*. Five occur within our limits, Vera Cruz and Jalisco being the most northern States of Mexico in which the genus is represented.

The antennæ of *C. aunus* are distinctly hooked, the attenuated terminal portion of the club equal to the swollen remainder. Palpi porrect, the terminal joint short but appearing beyond the closely set scales of the second joint. The lower discocellular of the primaries is a little shorter than the middle discocellular, in nearly a straight line with it and directed obliquely to the axis of the wing; the third median segment is considerably less than half the second segment, which, again, is about twice as long as

* *Eudamus phryniscus*, Hew. Descr. Hesp. p. 19 (1867), which Mr. Kirby (Cat. p. 634) places in the genus *Cecropterus*, has a costal fold in the male and belongs to *Thymeles*. *Thymeles viridans*, Mab. (Le Nat. x. p. 170, 1888), of which Dr. Staudinger has lent us the type, belongs to the same species.

the first segment; the third subcostal segment is more than the second and fourth together; the discocellulars of the secondaries are slender, and the second median branch starts from close to the end of the cell; these wings are rounded and have no tail. The hind tibiæ have two pairs of spurs and a prominent dorsal crest.

The genus is allied with those which follow rather than the preceding. In outward appearance all the species have similar coloration, viz. a distinct semidiaphanous white or yellowish band crosses the primaries, and generally there are subapical spots; the secondaries are plain, but beneath they are crossed by two obscure dark bands.

1. *Cecropterus neis*. (Tab. LXXX. fig. 2 ♂.)

Papilio bipunctatus, Gmel. Syst. Nat. i. p. 2360, ex Zschach ??¹.

Cecrops neis, Geyer in Hübn. Zutr. ex. Schmett. iv. p. 10, ff. 619, 620 (1832)².

Cecropterus neis, Plötz, Berl. ent. Zeitschr. 1882, p. 261³.

Alis fuscis, ciliis concoloribus; anticis ad basin pallidioribus griseo atomatis, fascia mediana venis quadripartita a costa ad angulum analem, macula parva ultra eam infra venam medianam maculisque tribus subapicalibus semihyalinis: subtus pallidioribus; anticis, maculis et fascia ut supra; posticis ad basin griseo atomatis, fasciis duabus obscuris transnotatis; capite summo et prothorace viridi lavatis.

Hab. MEXICO, Sierra Madre de Tepic (*Richardson*), Atoyac (*H. H. Smith*), Jalapa, Coatepec, Rinconada (*W. Schaus*), Orizaba (*F. D. G.*), Tierra Colorada, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Zapote (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Lion Hill (*M'Leannan*). — SOUTH AMERICA from Colombia to Brazil².

This species has frequently been called *P. bipunctatus*, Zschach¹, but in view of the great difficulty in discriminating these closely allied forms and the impossibility of accurately identifying the description with any one of them, we think it better to use Hübner's title, as has already been done by Plotz³.

Compared with *C. aunus*, the general resemblance of *C. neis* is great, but the transverse band of the primaries has more undulating margins, and not unfrequently the portion between the median nervure and its second branch is separated as an isolated or semi-isolated spot; the subapical spots also are well defined and generally three in number; the crown and prothorax as well as the tegulæ and thorax are more or less tinged with dark green. It is not, however, with *C. aunus* that its real relationship lies. In the male genitalia the outer portion of the harpes resembles that of *C. cinctus* in having a truncated extremity and a fissure near the end. In *C. aunus* the harpes have a long pointed extremity and the fissure is on the dorsal edge.

The range of *C. neis* is very extended; it is common in Mexico, chiefly on the eastern side of the mountains, thence it spreads southwards throughout Central America and over the greater part of tropical South America.

The male genitalia have a deeply cleft tegumen; the scaphium is well developed;

the harpes have a truncate slightly concave end and a longitudinal fissure, the upper corner rounded and serrate, the dorsal edge is hollowed out towards the end. (See Tab. LXXX. fig. 2.)

2. *Cecropterus cinctus*. (Tab. LXXX. fig. 3.)

Proteides cincta, Herr.-Schäff. MS.¹

Cecropterus cincta, Plötz, Berl. ent. Zeitschr. 1882, p. 261².

Telegonus rotundatus, Mab. Bull. Soc. Ent. Belg. xxvii. p. liii (1883)³.

C. nei similis, anticis fascia mediana angusta integra et sensim arcuata a basi magis remota, punctis subapicalibus concurrentibus; posticis magis rotundatis, ciliis undique niveis.

Hab. MEXICO, Amula, Xucumanatlan (*H. H. Smith*), Orizaba² (*F. D. G.*); GUATEMALA, Polochic and Chisoy valleys (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S., Champion*).

We have a specimen from the Kaden collection marked *Proteides cincta*, Herrich-Schäffer, and this agrees with Plötz's description. The species is somewhat like *C. nei*, but has shorter rounder wings, narrower transverse bands to the primaries, and a white fringe to the secondaries. The harpes in the male genitalia are similar to those of *C. nei*, the apical portion being truncated, and not pointed as in *C. aunus* and *C. vectilucis*. The species is not common in Southern Mexico nor in Guatemala: in the former country it is found in the mountains of Vera Cruz and in the Sierra Madre del Sur up to an elevation of 7000 feet; in Guatemala we did not observe it above 3000 feet.

Dr. Staudinger has lent us a specimen from Guatemala named *T. rotundatus*, Mab.³; this agrees with our series of *C. cinctus*, an older title.

3. *Cecropterus vectilucis*.

Eudamus vectilucis, Butl. Lep. Ex. p. 109, t. 40. f. 6¹; Butl. & Druce, P. Z. S. 1874, p. 366².

Alis fusco-brunneis; anticis fascia mediana transversa a costa ad angulum analem et macula trifida costali ad angulum apicalem flavo-hyalinis; posticis unicoloribus, ciliis (præcipue ad angulum apicalem) pallidioribus: subtus, anticis fasciis ut supra, area apicali sparsim ochraceo atomata; posticis lineis tribus obscuris transfasciatis, una per cellulam interrupta, altera discali quoque interrupta, tertia submarginali ad angulum apicalem obsoleta; genis albidis; palpis grisescentibus.

Hab. MEXICO, Mazatlan (*Forrer*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Dueñas and Chilasco (*Champion*), San Gerónimo, Chisoy Valley (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*^{1 2}), Irazu, Rio Sucio (*Rogers*); PANAMA, Veraguas (*Arcé*).

This species was described by Mr. Butler from specimens obtained by Van Patten in Costa Rica¹; we have now traced it as far north as Mazatlan in Western Mexico. It is not uncommon in Guatemala on both sides of the mountain-range up to an elevation of about 5000 feet.

In this species the transverse bands of the primaries are yellow as in *Rhabdoides cellus*, in all the rest of the genus they are more or less white. Its nearest relation,
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however, is *C. aunus*, the outline of the distal end of the harpes being very similar in both cases.

4. *Cecropterus aunus*. (Tab. LXXX. fig. 4 ♂.)

Papilio aunus, Fabr. Spec. Ins. ii. p. 134¹.

Eudamus aunus, Butl. Cat. Fabr. Lep. p. 260².

Cecrops zarex, Hübn. Zutr. ex. Schmett. i. p. 30, ff. 183, 184 (1818)³.

C. vectiluci similis, sed fascia anticarum albicante macula ad angulum apicalem costali evanescente; posticis ad angulum apicalem magis rotundatis, ciliis ab angulo apicali ultra venam medianam albis.

Hab. MEXICO, Cuesta de Misantla (*Trujillo*), Coatepec (*Brooks*), Cordova (*Rümelin*), Orizaba (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic valley, Yzabal (*F. D. G. & O. S.*), San Gerónimo, Zapote (*Champion*); HONDURAS (*Dyson*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA, Caché (*Rogers*); PANAMA, Calobre (*Arcé*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA from Colombia to Guiana and South Brazil.

Concerning this name there cannot be much doubt, for Mr. Butler tells us that the Fabrician type is still in the Banksian collection in the British Museum, and with it he identified specimens collected by Bates at Para. We have several examples from the last-named source, one of which is marked by Bates as referable to *C. zarex*, Hübner, a name we are inclined to think synonymous with *C. aunus*, though other authorities, including Plötz, keep them distinct.

C. aunus, as we understand it, differs from *C. neis* in having a more definite band to the primaries, the sides of which are less undulating; the apical margin of the secondaries and the fringe adjoining are always distinctly white.

C. aunus is exceedingly common in Eastern Mexico, but we have not seen specimens from the western side of the mountains. In Guatemala, however, it occurs in the mountains sloping towards the Pacific, as well as in the Atlantic lowlands.

The male genitalia resemble those of *C. neis*, so far as the tegumen and scaphium are concerned: the harpes have the ventral edge produced into a point; there is a deep fissure on the dorsal edge, beyond which is an angular lobe, and the continuation of the edge is irregularly serrate to the point. (See Tab. LXXX. fig. 4.)

5. *Cecropterus capys*, sp. n. (Tab. LXXX. figg. 5, 6, 7 ♂.)

Alis fuscis unicoloribus; anticis fascia mediana a costa ad angulum analem venis (præter subcostalem fuscum) concoloribus, maculis tribus subcostalibus semihyalinis, apice ipso ciliis paucis albis, reliquis fuscis; posticis unicoloribus, ciliis ab angulo apicali usque ad venam medianam secundum albis: subtus ut supra, posticis fasciis duabus obscuris valde indistinctis notatis: capite et corpore fuscis; palpis griseis.

Hab. MEXICO, Teapa (*H. H. Smith*); PANAMA, Lion Hill (*M^cLeannan*).—COLOMBIA; VENEZUELA; LOWER AMAZONS and BRAZIL.

In coloration this species almost exactly resembles *C. neis*; the only external differ-

ences, that we can detect, are the rather more compact transverse band of the primaries and the absence of any green tint to the head and thorax. When we compare the sexual organs of the male profound differences are revealed. The lower portion of the harpes in the present species is very much produced and bent upwards nearly to a semicircle; the upper portion is also produced, but is straight, terminating in a blunt end. (See Tab. LXXX. fig. 7.)

Our type specimen is from Panama, and is the one dissected; our other specimens are placed with it on the faith of external characters, but we are doubtful if anything short of actual dissection can prove their position.

RHABDOIDES.

Rhabdoides, Scudder, Butt. E. U. S. iii. p. 1854 (1889); Wats. P. Z. S. 1893, p. 34.

Mr. Scudder separated this genus for *Eudamus cellus* of Boisduval and Leconte, a well-known North-American species, which ranges throughout the uplands of Mexico. With it we associate *Myscelus epigona* of Herrich-Schäffer, as the male of that species is destitute of a costal fold to the primaries; it agrees, too, in neuration, but the male genitalia are like those of *Achalarus lycidas*.

Compared with *Achalarus* the discocellulars of the primaries are rather less oblique to the axis of the wing, and the recurrent nervule starts from a point a little beyond the middle of the third median segment instead of at the end of it. The primaries of the male have no costal fold as in *Achalarus*. The secondaries, though slightly produced at the anal angle, have no tail or distinct projection, nor have they any trace of a radial, nor of a tuft of hair on the upperside of those wings, or from the proximal end of the hind tibiæ; the second median branch starts before the end of the cell.

1. *Rhabdoides cellus*. (Tab. LXXX. fig. 8 ♂.)

Eudamus cellus, Boisd. & Lec. Lép. Am. Sept. t. 73 (1833)¹.

Rhabdoides cellus, Scudder, Butt. E. U. S. iii. p. 1855².

Cecrops festus, Geyer in Hübn. Zutr. ex Schmett. v. p. 27, ff. 907, 908 (1837)³.

Alis brunneis; anticis fascia mediana a costa fere ad angulum analem, macula costali ad apicem, flavo hyalinis; posticis ad angulum apicalem flavidis, venis brunneis: subtus pallidioribus; anticis ad apicem fusco marmoratis, fascia mediana ut supra, ad costam albida ad angulum analem flava; posticis undique fusco marmoratis ad marginem externum quoque squamis griseis notatis: corpore nigricanti-brunneo; palpis et genis sordide griseis; antennis infra flavidis.

Hab. NORTH AMERICA¹, Southern States, Arizona.—MEXICO, Milpas in Durango (*Forrer*), Cuernavaca, Xucumanatlan, Omilteme (*H. H. Smith*), Mexico City (*Schumann*), Pinal near Puebla (*F. D. G.*), Oaxaca (*Fenochio*), Putla (*Scudder*²).

This well-known species of the Southern States of America has a wide range in the Mexican highlands, occurring at an elevation of 6000 feet in the Sierra Madre of

Durango, as high as 8000 in the Sierra Madre del Sur, and at similar altitudes in other parts of Mexico; it also occurs at lower levels, as at Cuernavaca, where Mr. H. H. Smith found it in June.

It has no very near ally.

The male genitalia are somewhat like those of *Eudamus proteus*; the tegumen is cleft, the harpes pointed, and there is a deep fissure in the middle of the dorsal edge, the edge itself being raised on either side. (See Tab. LXXX. fig. 8.)

2. *Rhabdoides epigona*. (Tab. LXXX. figg. 9, 10, 11 ♂.)

Myscelus epigona, Herr.-Schäff. Prodr. iii. p. 59 (1868)¹.

Eudamus epigena, Butl. Trans. Ent. Soc. 1870, p. 493²; Lep. Ex. p. 65, t. 25. f. 6³; W. H. Edw. Trans. Am. Ent. Soc. vi. p. 58⁴; Papilio, ii. p. 141⁵.

Alis saturate brunneis; anticis macula in cellula, tribus inter ramos medianos, una parva supra venam medianam, tribus subapicalibus semihyalinis, ciliis fusco-albidis; posticis ciliis albis: subtus anticis ad marginem internum pallidis, ad marginem externum nigro irroratis; posticis fascia discali irregulari fusca nigro utrinque marginata, altera interiore maculosa, margine externo (angulo anali excepto) late albo fusco irrorato, margine interno quoque nigro irrorato.

Hab. NORTH AMERICA, Southern Arizona and Texas⁴.—MEXICO³, Orizaba (*H. J. Elwes*); GUATEMALA, San Gerónimo (*Champion*), Polochic Valley (*F. D. G. & O. S.*).

Mr. Butler described² and figured³ this species as *Eudamus epigena* from a specimen purporting to be the type of Herrich-Schäffer's *Myscelus epigona*. Very little is known of the species in Mexico, whence the type is said to have come, but across our border in Texas and Arizona it appears to be fairly numerous. The Mexican domicile of the species is fully confirmed by a specimen captured by Mr. H. J. Elwes at Orizaba, and, moreover, its extension southwards is proved by a specimen taken by Mr. Champion at San Gerónimo in Guatemala, and one sent us from the valley of the Polochic. The latter differs slightly from northern specimens in having the spots of the primaries very small.

The species most nearly resembling *R. epigona* is *Achalarus lycidas* of North America, and the male genitalia are almost precisely alike; but *R. epigona* has no costal fold to the primaries of the male, and the slight differences observable in the neuration bring it nearer *R. cellus*.

The male genitalia are like those of *Eudamus simplicius*; the harpes have the ventral edge produced into a long point, which is bent upwards and recurved into a hook. (See Tab. LXXX. fig. 11.)

MURGARIA.

Murgaria, Watson, P. Z. S. 1893, p. 37.

This genus is closely allied to *Rhabdoides*, and has the same wing-neuration, the primaries being without a costal fold. The terminal joint of the palpi is less exposed,

and the club of the antennæ is bent into a more symmetrical hook, the terminal portion tapering gradually from the middle of the club. The male genitalia of *M. albociliata* are like those of *Rhabdoides epigona*, and are of the *Eudamus simplicius* type rather than those of *R. cellus*, which more resemble *Eudamus proteus* in this respect. The secondaries are somewhat produced, but hardly more than in *R. epigona*.

We know of only one species of the genus, which is widely spread over nearly the whole of Mexico and Central America.

1. **Murgaria albociliata.** (Tab. LXXX. figg. 12, 13, 14 ♂.)

Telegonus albociliatus, Mab. Pet. Nouv. Ent. ii. p. 162 (1877)¹; Ann. Soc. Ent. Belg. xxi. p. 25 (1878)².

Alis saturate fuscis; anticis maculis obsoletis, pallidioribus, indistincte notatis; posticis ciliis ab angulo anali fere ad angulum apicalem niveis: subtus squamis paucis sordidis undique notatis; anticis maculatis ut supra; posticis quoque fasciis duabus maculosis indistinctis notatis: genis albis.

Hab. MEXICO, Campala in Durango (*Forrer*), Jalisco (*Schumann*), La Venta and Venta de Zopilote in Guerrero (*H. H. Smith*), Rinconada, Paso de San Juan (*W. Schaus*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA¹, Polochic and Central Valleys (*F. D. G. & O. S.*), San Gerónimo (*Champion, F. D. G. & O. S.*), Panima, Chiacam, Tocoyn (*Champion*); HONDURAS (*Dyson & mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA, San Francisco, Irazu (*Rogers*); PANAMA¹, Calobre (*Arcé*).—COLOMBIA^{1 2}.

Mr. Butler considers this species to be *Hesperia vespasius* of Fabricius, and *H. cassander* of that author to be a variety of the same insect. Judging from the descriptions and Donovan's figure of the latter, we very much doubt whether either of them refers to this species. No mention whatever is made of the white fringe to the secondaries, a conspicuous character in this common Central-American insect, and one which suggested M. Mabille's appropriate title. Dr. Staudinger has kindly lent us a specimen named by M. Mabille from Honduras, so that we are on sure ground in adopting this name.

The most northern point reached by this butterfly is the Sierra Madre of Northwestern Mexico; thence it spreads southwards through Southern Mexico and Central America to Panama. The most northern specimens have the fringe of the secondaries rather dusky, but otherwise we notice no individual variation.

The male genitalia have a cleft tegumen, the terminal points being short; the scaphium is well developed; the harpes are cleft at the end, the lower portion narrow and bent into a hook, the point of which is recurved and nearly closes the fissure, much as in *Eudamus simplicius* and its immediate allies. (See Tab. LXXX. fig. 14.)

THORYBES.

Thorybes, Scudder, Rep. Peab. Ac. Sc. iv. p. 71 (1872) ; Butt. E. U. S. ii. p. 1423 (partim) ; Wats. P. Z. S. 1893, p. 33.

Mr. Scudder first separated this genus from *Eudamus* in 1872, and designated *Papilio bathyllus* of Smith and Abbot as the type. With it he placed two other species, one of which (*T. nevada*) appears to be strictly congeneric, but the other, *T. pylades*, for reasons given below, we now place elsewhere.

Typical *Thorybes* have no costal fold, and the genus is closely allied to *Rhabdoides* ; the anal angle of the secondaries is not so much produced, the costa of the primaries is more gradually and evenly rounded, and the bent portion of the antennæ is shorter.

T. bathyllus, a North-American species, does not, so far as we ourselves know, occur within our limits, but Mr. Scudder states that he has seen specimens from Mazatlan and Costa Rica. *T. mexicanus* has a wide range in Western North America, and thence southwards over the greater part of Mexico.

1. **Thorybes mexicanus.** (Tab. LXXX. figg. 15, 16, 17 ♂.)

Eudamus mexicana, Herr.-Schäff. Prodr. iii. p. 68 (1868) ¹.

Thorybes nevada, Scudd. Rep. Peab. Ac. Sc. iv. p. 71 (1872) ².

Eudamus nevada, Lintn. Papilio, i. p. 74³ ; W. H. Edw. Trans. Am. Ent. Soc. xi. p. 320⁴.

Eudamus ananius, Plötz, Stett. ent. Zeit. 1882, p. 99⁵.

Alis saturate brunneis ; anticis maculis parvis sex (aut septem) semihyalinis, una cellulari, una rami mediani secundi utrinque et tribus subapicalibus, notatis, ciliis omnibus fuscis ad fines ramorum obscurioribus ; subtus pallidioribus, area submarginali glaucescente et lineis nigricantibus vermiculata ; posticis fasciis duabus indistinctis fuscis, una per cellulam, altera discali : palpis glauco-fuscis ; antennis supra fuscis, infra pallidis ; pectore fusco, abdomine medio albicante ; plica costali nulla.

♀ mari similis, sed maculis anticarum omnibus majoribus.

Hab. NORTH AMERICA, Texas⁴, California², Colorado², Arizona⁴.—MEXICO³, Northern Sonora (*Morrison*), Aguas Calientes, Jalapa (*W. Schaus*), Misantla (*F. D. G.*), Puebla and Pinal near Puebla (*H. J. Elwes*), Xucumanatlan and Omilteme in Guerrero (*H. H. Smith*).

The loan of the type of Herrich-Schäffer's *Eudamus mexicanus*, for which we are indebted to Dr. Staudinger, enables us to state that it agrees with a series of specimens in our collection from Mexico and Western North America, the latter sent us by Henry Edwards and Mr. Strecker under Mr. Scudder's name *T. nevada*. As Mr. Lintner has already stated, the species is quite distinct from *Thorybes pylades* (Scudd.). The male having no costal fold brings it into the same genus as *Thorybes bathyllus*, with which it also agrees in the development of the terminal joint of the palpi.

The male genitalia resemble those of *T. bathyllus* ; the tegumen is cleft, the scaphium well developed, the harpes are drawn to a blunt point, and there is a fissure on the dorsal edge. These organs therefore resemble those of *Eudamus proteus*. (See Tab. LXXX. fig. 17.) The imago figured is from Omilteme.

PHÆDINUS, gen. nov.

Allied to *Thorybes*, and the male, as in that genus, without a costal fold to the primaries; the terminal joint of the palpi is much longer and more prominent, being distinctly porrect, the hook of the antennæ is shorter, the third median segment of the primaries relatively shorter, and the lower discocellular longer.

The range of the genus extends from Southern Arizona to the highlands of Guatemala.

1. *Phædinus caicus*. (Tab. LXXX. figg. 18, 19, 20 ♂.)

Eudamus caicus, Herr.-Schäff. Prodr. iii. p. 68 (1868) ¹.

Eudamus moschus, W. H. Edw. Papilio, ii. p. 141 ? ²

Eudamus schaefferi, Plötz, Stett. ent. Zeit. 1882, p. 99 ³.

Alis saturate brunneis; anticis maculis octo semihyalinis, una transversa cellulari, una rami mediani secundi utrinque, una ultra eas, et quatuor subapicalibus; anticis ciliis fuscis inter venas pallidioribus, posticis ciliis albis ad angulum apicalem fuscis: subtus pallidioribus, anticis ad marginem externum, posticis undique lineis nigris vermiculatis; posticis quoque fasciis duabus indistinctis fusco-nigricantibus notatis: palpis albicantibus squamis fuscis intermixtis, segmento ultimo nigro.

Hab. NORTH AMERICA, Arizona ¹.—MEXICO, Northern Sonora (*Morrison*), Orizaba (*H. J. Elwes*), Acaguizotla (*H. H. Smith*); GUATEMALA (*mus. Staudinger*), Polochic Valley (*F. D. G. & O. S.*), Dueñas (*Champion*).

Dr. Staudinger has kindly lent us a specimen of this species which bears the name *Eudamus caicus*, H.-S., with the type of which it has doubtless been compared. It agrees with a series of examples we possess from Guatemala and Southern Mexico; but those from our north-western frontier are rather paler, the palpi are whiter, and the hyaline spots of the primaries are larger. The latter probably belong to Mr. Edwards's *Eudamus moschus* from Arizona. We hesitate to separate them from the darker more southern forms, especially as the male genitalia do not differ in any way.

These have a short cleft tegumen, the harpes have rounded ends, and there appears to be no distinct fissure on the dorsal edge. (See Tab. LXXX. fig. 20.) The imago figured is from Orizaba.

2. *Phædinus aventinus*, sp. n. (Tab. LXXX. figg. 21, 22.)

P. caico aliquot similis, sed posticis longioribus magis productis, ciliis omnino fuscis; maculis anticarum parvis et magis numerosis, macula cellulari et ea infra cellulam bifidis, altera quoque costali supra cellulam: subtus omnino unicoloribus, posticis vix fasciatis: palpis obscure griseis.

Hab. MEXICO, Dos Arroyos and La Venta in Guerrero (*H. H. Smith*).

Having only two specimens of this species, we are in some doubt as to the propriety of assigning them to this genus. They are apparently males, and having no costal fold to the primaries agree with *Phædinus caicus*, and the palpi are also elongated. The secondaries are longer and resemble those of *Cogia calchas*, but there is no trace of a pencil of hairs near the inner margin of the secondaries. The types were captured by Mr. Herbert Smith in the month of September in Guerrero, at elevations of 300 and 1000 feet above sea-level.

COCCEIUS, gen. nov.

Eudamus pylades, which we make the type of this genus, has usually been placed with *T. bathyllus* in the genus *Thorybes*, but the presence of a costal fold to the primaries of the male indicates that its true relationship is rather with *Achalarus*. From the latter genus it differs in the shape of the secondaries, which are much more rounded at the anal angle.

C. pylades has a wide range in North America, and extends over the highlands of Mexico as far south as the State of Oaxaca. A second species, *C. drusius*, occurs along our north-western frontier.

Achalarus, of which the type is the North-American *A. lycidas*, does not occur within our region. Its range, according to Mr. Watson, extends to the Indian region, where several species are found.

1. *Cocceius pylades*. (Tab. LXXX. fig. 23 ♂.)

Eudamus pylades, Scudd. Proc. Bost. Soc. N. H. xiii. p. 207 (1870)¹; Edw. Trans. Am. Ent. Soc. xi. p. 320².

Thorybes pylades, Scudd. Rep. Peab. Ac. Sc. iv. p. 50³; Butt. E. U. S. ii. p. 1436⁴; Wats. P. Z. S. 1893, p. 33⁵.

Alis saturate brunneis, ciliis omnibus fere concoloribus vix pallidioribus; anticis maculis parvis septem semi-hyalinis, una cellulari, una ultra eam, una rami mediani primi utrinque et tribus subapicalibus: subtus posticis fasciis duabus transversis valde irregularibus nigro limbatis, una discali, altera per cellulam: palpis fuscis, plica costali obvia.

♀ mari similis, sed maculis anticarum majoribus.

Hab. NORTH AMERICA generally, from Canada to Florida, California, Colorado, and Arizona².—MEXICO, Northern Sonora (*Morrison*), Milpas in Durango (*Forrer*), Oaxaca (*Fenochio*).

We have little to add to the account given of this species by Mr. Scudder⁴ in his 'Butterflies of New England and the Eastern United States.' We trace the extension of its range from Sonora and Durango to Oaxaca, but not from any intermediate point. Our specimens from the latter locality are worn and the fringes abraded; but we believe them to be referable to this species, and not to the white-fringed *C. drusius*. These species are exceedingly like the members of *Thorybes*, but may be distinguished by the costal fold of the primaries of the male.

The male genitalia have a tegumen like that of *Thorybes bathyllus*; it is longer than in *Phædinus mexicanus*, but cleft at the end; the harpes have rounded extremities, and there is a fissure on the dorsal edge. (See Tab. LXXX. fig. 23.)

2. *Cocceius drusius*.

Eudamus drusius, Edw. Can. Ent. xv. p. 211 (1883)¹; Trans. Am. Ent. Soc. xi. p. 320².

C. pyladi affinis, sed ciliis posticarum albis facile distinguendus; anticis sicut in *C. pyladi*, plica costali instructis.

Hab. NORTH AMERICA, Arizona^{1 2}.—MEXICO, Northern Sonora (*Morrison*).

We have a male specimen from Morrison, bearing the name *Eudamus drusius*, Edw., and it agrees with Mr. Edwards's description of this species.

In having a white fringe to the secondaries it resembles *Phædinus mexicanus*, but it may at once be distinguished by its shorter palpi and the presence in the male of a costal fold to the primaries.

CABARES, gen. nov.

Antennæ with a gradually tapering club, curved in the middle into a crook. Palpi porrect, the third joint rather prominent. Primaries with the cell more than two-thirds the length of the costa, the second, third, and fourth subcostal segments subequal; lower discocellular rather shorter than the middle, the two forming an oblique line at a large acute angle to the axis of the wing; third median segment less than half the second, and rather shorter than the first; a curved recurrent nervule starts from the end of the cell. Secondaries with the discocellulars very slender; third median segment very short; second subcostal segment also short. Primaries short, slightly truncate at the tip; no costal fold in the male; secondaries with a projection in the middle of the outer margin from the end of the median nervule. Hind tibiae with two pairs of spurs.

Type *Thanaos potrillo*, Lucas.

This genus, perhaps, comes near *Ephyriades*, but there are several points of distinction, such as the more oblique discocellulars of the primaries, the more truncate wings, and the projection on the outer margin of the secondaries (insufficiently shown on the Plate). There appear to be no distinctive male characters on the wings, either in the form of a costal fold to the primaries or hair-like scales in the abdominal fold of the secondaries.

C. potrillo, which we select as the type of the genus, ranges from the Mexican State of Durango to Colombia. The second species described below is restricted to Mexico and Central America.

1. *Cabares potrillo*. (Tab. LXXX. figg. 24, 25, 26 ♂.)

Thanaos potrillo, Luc. in R. de la Sagra's Hist. Cub. vii. p. 275 ??¹.

Eudamus potrillo, Plötz, Stett. ent. Zeit. 1882, p. 98².

Alis brunneo-murinis, anticis maculis quatuor linea fere recta transversa mediana positis, una costali bifida, una cellulari extrorsum profunde sinuata et duabus infra eam semihyalinis, macula altera lineari ultra eas et tribus subapicalibus quoque hyalinis; posticis fasciis duabus indistinctis fuscis, una cellulari, altera discali, margine externo medialiter sensim producto: subtus maculis et fasciis ut supra, anticis parte apicali et posticis dimidio distali grisescentioribus; fasciis posticarum ad angulum analem pallide extrorsum limbatis.

♀ mari similis.

Hab. MEXICO, Dos Arroyos in Guerrero (*H. H. Smith*), Coatepec, Rinconada, Paso de San Juan (*W. Schaus*), Coatepec (*Brooks*), Atoyac, Teapa (*H. H. Smith*), Temax and Valladolid in Yucatan (*Gaumer*); GUATEMALA, Dueñas (*Champion*); COSTA RICA, San Francisco, Caché (*Rogers*).—VENEZUELA²; CUBA¹; JAMAICA.

This species bears some resemblance to *Telemiades amplion*, but has no real affinity with it, the male having no costal fold or other essential differences. The hyaline

spots of the central cluster of the primaries are more isolated and arranged in a straighter transverse line; moreover, the spot in the cell has a very sinuous outer margin.

The distribution of the species is probably general throughout Central America and Southern Mexico, and according to Plötz² extends to the southern continent.

Dr. Staudinger has lent us two specimens of this species, named "*T. potrillo*, Luc.," a Cuban insect, and Plötz's description appears to refer to the same species.

Though the description in La Sagra's work is quite inadequate, we adhere to the determination of these authors.

The male genitalia have a cleft tegumen, the points standing widely apart; the scaphium is well developed; the harpes are truncate at the end, and from the upper corner a long slightly recurved rod proceeds. (See Tab. LXXX. fig. 26.)

2. *Cabares enops*, sp. n. (Tab. LXXX. figg. 27, 28.)

Alis brunneis, anticis maculis duabus infra cellulam, una rami mediani secundi utrinque et tribus subapicalibus semihyalinis nigro cinctis, macula bifida cellulari aliisque submarginalibus fusco-nigricantibus; posticis maculis fusco-nigricantibus irregulariter positis: subtus pallidioribus et magis fulvis maculis omnibus magis obviis: palpis segmento medio subtus albo; plaga costali nulla.

Hab. MEXICO, Atoyac (*H. H. Smith*), Coatepec (*W. Schaus*); HONDURAS (*Mus. Brit.*).

We have only seen a single specimen from each of the above localities, and as only one of these is in our possession we are not able to make a dissection of it so as to form a better idea of its true generic position. In the shape of the secondaries it agrees with *C. potrillo*, but the palpi (wanting in our specimen, but present in Mr. Schaus's) seem a little more prominent.

Both this species and *C. potrillo* are included by Mr. Watson, as undetermined species, in the genus *Ephyriades*.

COGIA.

Cogia, Butler, Trans. Ent. Soc. 1870, p. 508 (nec *Kogia*, Gray, 1863 *); Plötz, Berl. ent. Zeitschr. 1882, p. 259; Wats. P. Z. S. 1893, p. 32.

This is a small genus containing seven or eight species distributed over Tropical America from South Brazil to our northern frontier. One of its characteristic features is a small tuft or pencil of hairs arising from the base of the abdominal fold of the secondaries. In some species this tuft is short and terminates abruptly; in the type (*C. hassan*) and in others it is more elongate and continues to the end of the fold. The latter resemble the members of *Typhedanus* in this respect, but the secondaries are much more rounded than in the species of that genus.

The club of the antennæ tapers to a point and is bent into a crook. Palpi porrect, the terminal joint short, projecting slightly beyond the scales of the second joint.

* Dr. J. E. Gray used *Kogia* for a genus of Whales (P. Z. S. 1863, p. 199). As the orthography is different from Mr. Butler's *Cogia*, we hope the latter will be allowed to stand.

Cell of the primaries about two-thirds the length of the costa; second and third subcostal segments longer than the fourth and fifth; upper discocellular very short, middle and lower discocellulars subequal, in an oblique line to the axis of the wing; first submedian segment short, less than half the second, about equal to the third; the discocellulars of the secondaries very faint; third median segment short, about one-third the second segment. A tuft of hairs arises from the angle between the median and submedian nervures near the base. (Description taken from *C. cajeta*, H.-S.)

The four Central-American and Mexican species may be briefly divided as follows:—

Tuft of hairs long; secondaries rounded.

Primaries with diaphanous spots *cajeta*.

Primaries unspotted *eluina*.

Tuft of hairs truncate.

Secondaries rounded *calchas*.

Secondaries slightly elongated *hippalus*.

1. *Cogia cajeta*. (Tab. LXXXI. figg. 1, 2, 3 ♂.)

Eudamus cajeta, Herr.-Schäff. Prodr. iii. p. 68 (1868)¹; Kirby, Cat. Hew. Coll. p. 214².

Alis ochraceo-fuscis; anticis ad costam et ad marginem externum saturatioribus, macula in cellula altera supra eam costali, una rami mediani secundi utrinque (introrsum fusco marginatis) et punctis quatuor subapicalibus semihyalinis, maculis indistinctis infra cellulam et alteris ad angulum analem fuscis; posticis paullo pallidioribus, fasciis duabus fuscis, una discali, altera cellulari; plica margini interno parallela cirro ochraceo includente: subtus fere ut supra, anticis area interna pallida.

♀ mari similis, sed posticis plica nulla.

Hab. MEXICO, Jalapa, Paso de San Juan (*W. Schaus*), Teapa (*H. H. Smith*).

There is a specimen in the British Museum of this species bearing Herrich-Schäffer's title *E. cajeta*, but its origin is not stated². We possess three specimens, and Mr. Schaus has several, all of them from Mexico, which establish it as a member of our fauna. Though a much larger species, it seems strictly congeneric with *C. hassan*, the type of the genus *Cogia*.

The male genitalia have the tegumen notched at the end, the points being blunt; the scaphium is well developed: the harpes are truncate, the ventral edge turns up rather abruptly and is concave beyond the angle; there is a notch on the dorsal edge, but no fissure. (See Tab. LXXXI. fig. 3.)

2. *Cogia eluina*, sp. n. (Tab. LXXXI. figg. 4, 5.)

C. cajetæ similis, sed alis obscurioribus; anticis immaculatis, posticis saturatioribus fere unicoloribus, fasciis obsoletis: subtus fere unicoloribus, fasciis omnibus vix indicatis; cirro abdominali posticarum ochraceo.

Hab. MEXICO, Actopan (*G. Mathew*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Motagua Valley, San Gerónimo (*F. D. G & O. S.*).

We have two male specimens of this species, taken at San Gerónimo during our expedition to Guatemala in 1861-63, and a female from the Motagua Valley, as well as others from Mexico.

C. eluina is closely allied to the Mexican *C. cajeta*, but may readily be distinguished by the absence of both the hyaline and dark spots on the wings.

3. *Cogia calchas*. (Tab. LXXXI. fig. 6 ♂.)

Eudamus calchas, Herr.-Schäff. Prodr. iii. p. 68 (1868)¹.

Spathalepia terranea, Butl. Lep. Ex. p. 111, t. 40. f. 8²; Butl. & Druce, P. Z. S. 1874, p. 367³.

Alis fuscis; anticis maculis duabus ad medium costæ, aliisque quatuor subapicalibus pallidis: subtus pallidioribus; anticis dimidio distali fusco irroratis, apice albido intermixtis; posticis fusco irroratis, fasciis duabus indistinctis undulatis obscurioribus, una discali, altera cellulari: palpis et pectore albis; posticis margine abdominali cirro breve truncato fusco instructo.

Hab. MEXICO, Jalapa, Coatepec (*W. Schaus*), Misantla (*F. D. G.*), Cordova (*Höge, Rümeli*), Atoyac (*H. H. Smith, Schumann*), Orizaba (*F. D. G.*), Jalisco (*Schumann*), Acapulco, Dos Arroyos, Rio Papagaio, Tierra Colorada, Venta de Zopilote, Acaguizotla, Teapa (*H. H. Smith*); GUATEMALA, Polochic and Chisoy Valleys (*F. D. G. & O. S.*), Cahabon, Panima, San Gerónimo (*Champion*), Dueñas (*F. D. G. & O. S., Champion*); COSTA RICA (*Van Patten*^{2 3}), San Francisco, Caché, Irazu (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba, David (*Champion*), Veraguas (*Arcé*), Paraiso (*Hughes*), Colon (*A. H. Markham*).—SOUTH AMERICA generally, from Colombia to South Brazil.

We have a specimen of this species, given us by Dr. Semper, bearing the name of *E. calchas* of Herrich-Schäffer, under which name it appears in Plötz's unpublished drawings; another specimen lent us by Dr. Staudinger bears the same name, and both of them agree with Mr. Butler's type of *Spathalepia terranea*². The species is exceedingly common in all parts of Central America, occurring at the sea-level and at a height of upwards of 3000 feet in the mountains.

The male genitalia have the tegumen ending in a single blunt point; the scaphium is not strongly developed; the harpes are truncate, the end being slightly concave, the upper corner is produced, and from the point the dorsal edge is concave and distinctly serrate to where the curve becomes convex. In the interior of the œdeagus are a number of strong spines. (See Tab. LXXXI. fig. 6.)

4. *Cogia hippalus*. (Tab. LXXX. figg. 29, 30, 31 ♂.)

Eudamus hippalus, W. H. Edw. Papilio, ii. p. 27 (1882)¹.

Alis brunneis; anticis maculis tribus in linea transversa positis, una ad costam, altera in cellula, tertia infra eam, macula altera ultra eas infra venam medianam, punctis quatuor subapicalibus semihyalinis; posticis ciliis albis, cirro fusco prope basin inter venam submedianam et medianam: subtus fuscis, anticis dimidio apicali saturate fusco variegatis et cervino atomatis; posticis fasciis duabus, una discali, altera cellulari et macula magna costali nigricantibus, margine externo medialiter albido dense atomato, ciliis fusco interruptis.

Hab. NORTH AMERICA, Arizona¹.—MEXICO, Jalapa, Rinconada, Paso de San Juan (*W. Schaus*), Atoyac, Dos Arroyos (*H. H. Smith*).

In some respects this species resembles *Rhabdoides epigona*, especially on the upper surface; but it may at once be distinguished from that species by the presence of a small tuft of hairs on the secondaries attached to the interspace between the median and submedian nervures near the base; this doubtless is a male character, but of sufficient importance to indicate the genus into which the species should be placed.

We have a number of specimens sent us by the late T. K. Morrison from Fort Grant, Arizona, and these agree fairly with Mr. Edwards's description of *Eudamus hippalus*—no mention, however, being made of the tuft of hairs on the secondaries. The Arizona examples differ in no way from a series from the Mexican States of Vera Cruz and Guerrero in our own collection and in that of Mr. Schaus. A Guerrero specimen is figured.

The male genitalia have a tegumen ending in a single depressed point; the scaphium is fairly developed: the harpes are truncate, ending in a concave depression with a rounded lobe at each corner; the distal half of the dorsal edge is concave, with a few strong teeth on the proximal portion, followed by a serrate edge to the end. The œdeagus is filled with strong spines. (See Tab. LXXX. fig. 31.)

TYPHEDANUS.

Typhedanus, Butler, Trans. Ent. Soc. 1870, p. 497; Wats. P. Z. S. 1893, p. 34.

Mr. Butler described this genus in 1870 from a supposed new species, *T. zephus* in Mr. Druce's collection, but which now proves to be *Telemiades umber* of Herrich-Schäffer*.

The characteristic features of *Typhedanus* are its elongated pointed secondaries and the brush of erectile ochraceous hairs which lie in the abdominal fold and start from the angle between the median and submedian nervures. This brush is similar to that possessed by typical species of *Cogia*, but the pointed secondaries serve to distinguish *Typhedanus* from that genus.

The antennæ have a moderate club bent into a hook, the attenuated end slender and not more than half as long as the rest of the club. The third joint of the palpi is small, hardly showing beyond the scales of the second joint. Primaries pointed, the cell more than two-thirds the length of the costa; the third subcostal segment longer than the second and fourth together; the middle and lower discocellulars subequal and in a straight line; the third median segment about half the second. Secondaries produced; the third median segment about half the second segment, the second median branch starting some way from the end of the cell. Primaries without a costal fold; secondaries with a large erectile brush of hairs arising between the median and submedian nervures, and when withdrawn lying in the abdominal fold.

* *Telemiades umber*, Herr.-Schäff. Prodr. iii. p. 68 (1868).

Typhedanus umber, Plötz, Stett. ent. Zeit. 1882, p. 101.

Typhedanus zephus, Butl. Trans. Ent. Soc. 1870, p. 497; Lep. Ex. p. 112, t. 40. f. 12.

So far as we know at present *Typhedanus* contains two species—one from Mexico and the other from Venezuela.

1. ***Typhedanus alladius***, sp. n. (Tab. LXXXI. figg. 7, 8, 9 ♂.)

Alis brunneis, fasciis duabus communibus obscurioribus, exteriore ad angulum anticarum apicalem interrupta; posticis ad angulum analem et ciliis fulvis, sulco elongato ad marginem internum penicillo fulvo includente: subtus fasciis communibus magis distinctis, colore fulvo ad angulum posticarum analem magis extenso.

Hab. MEXICO, Coatepec (*Brooks*), Atoyac (*H. H. Smith, Schumann*).

This species is exceedingly like *Telegonus anaphus* in general appearance, having almost exactly the same coloration; but the male may at once be distinguished by a tuft of long hairs lying in a groove parallel to the inner margin of the secondaries. This character is strongly supported by the difference in the secondary male organs of the two species, as will be seen by comparing the figures. The females, so far as we can tell, are barely separable by external characters.

We have a number of specimens of this species, all taken on the mountain-slopes of the State of Vera Cruz—some by Mr. Brooks at Coatepec near Jalapa (one of which we figure), the rest by Mr. Herbert Smith at Atoyac at a lower elevation. The latter were all captured in April.

The male genitalia have a long cleft tegumen ending in a depressed hook; the scaphium is well developed; and the harpes end in a rounded upturned lobe. (See Tab. LXXXI. fig. 9.)

CÆCINA.

Cæcina, Hewitson, Descr. Hesp. p. 55 (1868); Watson, P. Z. S. 1893, p. 36.

Hewitson described this genus in 1868, and placed two species in it, both having well-marked male characters, viz. a tuft of hairs situated on the upperside of the cell of the secondaries and a large glabrous patch on the underside of the primaries. These characters are also present in Mr. Watson's genus *Porphyrogenes*, doubtfully distinct from *Cæcina*.

The antennæ have a gradually thickening club, tapering from the middle to the end, evenly curved and not abruptly bent. The third joint of the palpi is short, but projects slightly beyond the scales of the second joint. The costa of the primaries is arched, the apex truncate, and the outer margin concave; the cell is more than two-thirds the length of the wing; the third median segment is longer than the first, the lower discocellular slightly longer than the middle but in a line with it; the third median segment is less than a third the second segment. The outer margin of the secondaries is much rounded, the anal angle only slightly projecting; the discocellulars very feeble, the third median segment very short, the second median branch starting from close to the end of the cell; the second subcostal segment also unusually short.

The primaries have a costal fold in the male, and a glabrous patch on the underside extending from the basal half of the first median branch and the first median segment to the outer margin; this patch covers an elongated tuft of hairs arising from the cell of the secondaries and directed upwards towards the costa.

Cæcina extends from Guatemala to Venezuela and the Amazons Valley.

1. *Cæcina calathana*.

Cæcina calathana, Hew. Descr. Hesp. p. 56; Ex. Butt., Hesperidæ, f. 5; Staud. Ex. Tagf. p. 291, t. 98.

Alis rufo-brunneis, fascia communi discali obsoleta fusca, altera per cellulam; posticis area ad angulum analem et ciliis fulvis: subtus ut supra, fasciis communibus vix obviis; posticis colore fulvo introrsum bene definito.

♀ mari similis.

Hab. PANAMA, Veraguas (*Arcé*), Chiriqui (*Ribbe*).—COLOMBIA^{1 2}.

Hewitson's description and figure of this species were based upon a Colombian specimen¹, and we have seen two others, one of each sex, from our country. As Hewitson observes, this species in general appearance resembles *Telegonus anaphus*, but there is no even approximate alliance between the two insects. The female closely resembles the male in colour; the tawny tint of the anal angle is rather more extended.

2. *Cæcina calanus*, sp. n. (Tab. LXXXI. figg. 10, 11, 12 ♂.)

C. calathanæ similis, sed alis latioribus; posticis ad angulum analem minus productis, et supra ciliis tantum fulvis.

Hab. MEXICO, Paso de San Juan (*W. Schaus*); GUATEMALA, Polochic Valley, Pacific coast (*F. D. G. & O. S.*), Panima, San Gerónimo (*Champion*).

This species is strictly congeneric with *C. calathana*, the male having the same characteristics. We have several specimens, representing both sexes, all from Guatemala, where it is found on both sides of the mountain-range, occurring up to an elevation of 3000 feet.

The male genitalia have a peculiar tegumen ending in two widely divergent truncate hooks, two lobes arising one on either side of the middle line; the scaphium is well developed and ends in two lobes covered with thickly-set papillæ; the harpes have an elongated hook, the continuation of the ventral edge, ending in a sharp recurved point, before which the outer edge is serrate. (See Tab. LXXXI. fig. 12.)

ÆTHILLA.

Æthilla, Hewitson, Descr. Hesp. p. 55 (1868); Plötz, Berl. ent. Zeitschr. 1882, p. 257 (partim); Wats. P. Z. S. 1893, p. 37.

We follow Mr. Watson in restricting this genus to the species which have a long

brush or pencil of hairs attached to the proximal end of the hind tibiæ. Plötz uses the name in a wider sense, and evidently includes several species of *Telegonus*, and amongst them *T. anaphus* (Cr.), the type of *Telegonus*!

The club of the antennæ is only slightly thickened, and the long terminal attenuated portion is curved to a hook. The third joint of the palpi is very small, but distinctly projects beyond the thickly-set scales of the second joint. Primaries with the inner and outer margins subequal, the costa gently curved, the apex rather acute but not produced, the cell about two-thirds the length of the wing, the second and third subcostal segments subequal, the lower discocellular a little shorter than the middle but in a line with it, the third median segment more than half as long as the second; the third median segment of the secondaries long, more than half the length of the second segment, the discocellulars feeble, radial absent; second subcostal segment short, about equal to the second median. Hind tibiæ with a long brush of hairs arising from the proximal end and considerably longer than the joint itself.

The number of species contained in this genus is uncertain: Mr. Watson recognizes five in the British Museum, and we have two others. All of them belong to the Neotropical region, both the following species reaching the Mexican State of Vera Cruz.

1. ***Æthilla echina***. (Tab. LXXXI. figg. 13, 14 ♂.)

Æthilla echina, Hew. Equat. Lep. p. 70 (1869)¹.

Alis saturate brunneis, ciliis concoloribus, fasciis duabus communibus discalibus pallidioribus interiore in posticis interrupta: subtus ut supra; anticis ad apicem albido atomatis; posticis ad marginem externum quoque atomatis, fasciis duabus irregulariter dentatis discalibus albis; capite et corpore toto alis concoloribus.

Hab. MEXICO, Atoyac (*H. H. Smith*), Paso de San Juan (*W. Schaus*); GUATEMALA, Choctum, Polochic Valley (*F. D. G. & O. S.*), Zapote (*Champion*); PANAMA, Chiriqui (*Arcé, Ribbe*), David, Bugaba (*Champion*), Veraguas (*Arcé*).—COLOMBIA; ECUADOR¹; AMAZONS VALLEY and BRAZIL.

Hewitson described this species from specimens taken by Buckley at Rotuno in Ecuador, and we have a good series from Central America agreeing with the type. Mr. Herbert Smith also found it at Chapada, in the Province of Matto Grosso. The latter specimens are a little paler in colour, and the two white discal bands of the secondaries beneath are confluent, otherwise they agree with the typical form. In our country *Æ. echina* is a lowland insect, the limit of its range in altitude probably not exceeding 3000 feet.

The male genitalia resemble those of *Æ. eleusina*, the type of the genus. The tegumen is slightly truncate, the corners projecting a trifle; at the base of the terminal portion a pair of erect rods arise nearly at right angles to the dorsal ridge, one on either side of it; the scaphium is well developed and hangs low in the anal cavity:

the harpes are truncate, the upper angle produced and serrate; from below the middle of the dorsal edge is a rounded lobe, serrate and covered over the surface with a series of dentate papillæ. (See Tab. LXXXI. fig. 14.)

2. *Æthilla lavochrea*.

Æthilla lavochrea, Butl. Lep. Ex. p. 110, t. 40. f. 4¹; Butl. & Druce, P. Z. S. 1874, p. 367²; Plötz, Berl. ent. Zeitschr. 1882, p. 257³.

Alis fusco-nigricantibus indistincte fasciatis; posticis ciliis ochraceis: subtus ut supra; posticis margine externo late, angulum apicalem haud extendente ochraceis: capite et corpore undique alis concoloribus. ♀ mari similis.

Hab. MEXICO (*mus. Brit.*¹), Atoyac (*H. H. Smith*), Paso de San Juan (*W. Schaus*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Zapote (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{1 2}); PANAMA, Chiriqui (*Ribbe*), Calobre (*Arcé*), Lion Hill (*M. Leannan*).

Mr. Butler's description of the male of this species was based on a Costa Rican specimen now before us. We have several others from various parts of our country agreeing closely with the type, the females differing, as usual, in their broader and less pointed wings.

The most northern limit of its range appears to be Central Vera Cruz, where Mr. H. H. Smith captured two specimens at Atoyac at the foot of the mountain-range. We have no record of its occurrence in Western Mexico, but it is found on both sides of the Cordillera in Guatemala. Its range in altitude extends from the sea-level to about 2000 or 3000 feet.

The brushes attached to the proximal end of the hind tibiæ are not always easy to see. In a specimen lent us by Dr. Staudinger they are plainly visible.

The male genitalia are like those of *Æ. echina*, but the erect rods of the tegumen are not nearly so long, nor is there so distinct a lobe on the dorsal edge of the harpes.

ORNEATES, gen. nov.

Antennæ with a club bent before the middle to form a distinct hook. Terminal joint of the palpi almost hidden by the thickly-set scales of the second joint. Primaries rather elongate, with rounded apex, the cell more than two-thirds the length of the wing, the lower and middle discocellulars subequal and in a line, the third median segment short, about one-third the second segment. Secondaries rounded at the anal angle, the discocellulars feeble, a radial distinctly present, the third median segment short, about one-quarter the second segment, second subcostal segment about equal to the second median. Hind tibiæ of the male with a long brush of hairs from the proximal end, rather longer than the joint.

In coloration the type of this genus, *O. ægiochus*, resembles the members of *Thymele*, of which *T. fulgerator* is the best-known example; the brush on the hind tibiæ, however, suggests an affinity with *Æthilla*, and we therefore place it here for the present. Other structural points indicate that this is not likely to be its ultimate position.

1. *Orneates ægiochus*. (Tab. LXXXI. figg. 15, 16, 17 ♂.)

Eudamus ægiochus, Hew. Ann. & Mag. N. H. 1876, xviii. p. 350¹.

Alis saturate brunneis, anticis ad basin vivide cæruleis, fascia recta mediana angusta a costæ medio ad angulum analem venis quinquepartita et punctis quinque subapicalibus in linea arcuata positis semihyalinis: subtus brunneis; anticis fascia et punctis ut supra, costa dimidio proximo et posticis ad basin vivide cæruleis: capite et corpore supra viridi-cyaneis; palpis et pectore ochraceis, illis pallidioribus nigro circumcinctis.

Hab. COSTA RICA, Caché (*Rogers*); PANAMA, Volcan de Chiriqui (*Trötsch*¹), Chiriqui, Veragua (*Arcé*).

This species was described by Hewitson from specimens sent him by Dr. Staudinger, who has lent us a named specimen which agrees with others from Chiriqui and its neighbourhood. It is a well-marked species, distinguished by the prominence and number of the subapical spots, and by having both wings washed with blue at the base.

In general appearance *O. ægiochus* recalls *Thymeles fuligator*, but, besides having more rounded secondaries, the presence in the male of a brush of hairs from the proximal end of the hind tibiæ shows that its relationship is elsewhere.

The male genitalia have a short tegumen with a shallow cleft at the end; the scaphium is well developed; the harpes are lengthened into a point, and on the middle of the dorsal edge is a slender lobe slightly directed outwards. (See Tab. LXXXI. fig. 17.)

b'. Palpi porrect, divergent; terminal joint long, slender.

HYDRÆNOMIA.

Udranomia, Butler, Ent. Monthly Mag. vii. p. 58 (1870).

Hydrænomia, Butler, tom. cit. p. 99; Wats. P. Z. S. 1893, p. 38.

A peculiar genus, of which the now well-known *H. orcinus* (Feld.) is the type. This species has a wide range over Tropical America, as will be seen below. A second well-marked species, apparently undescribed, occurs in South Brazil, which has many of the characteristics of *H. orcinus*, but is, perhaps, not strictly congeneric.

The antennæ have a stoutish club; the terminal attenuated portion is short, not more than half the thickened part. Head wide, eyes large. Palpi widely apart; terminal joint long, slender, porrect. Primaries narrow, rather pointed; costa rather straight and with a fold, outer margin with a notch near the anal angle; cell about two-thirds the length of the wing; second and third subcostal segments long and subequal; upper discocellular long and oblique, middle discocellular shorter than the lower, the latter about equal to the third median segment, which, again, is about one-quarter the length of the long second segment. Secondaries indented on the outer margin near the anal projection; cell rather long and wide, discocellulars and radial faint, third median segment distinct, second subcostal segment long, about half the first segment. Hind tibiæ with two pairs of spurs, the proximal pair small.

1. *Hydrænomia orcinus*. (Tab. LXXXI. fig. 18 ♂.)

Eudamus orcinus, Feld. Reise d. Nov., Lep. p. 510, t. 71. ff. 4, 5 (1867) ¹.

Hydrænomia orcinus, Wats. P. Z. S. 1893, p. 38 ².

Eudamus albicuspis, Herr.-Schäff. Prodr. iii. p. 68 (1868) (fide Staudinger) ³.

Alis fuscis; anticis macula cellulari profunde fissa, altera infra eam aliis tribus discalibus tribus quoque subapicalibus (media proxima) semihyalinis, macula ad medium marginis interni albida; posticis fasciola basali, altera discali maculosa semihyalina, lunulis submarginalibus ochraceis quoque notatis: subtus ut supra, sed pallidioribus et magis canescentibus, maculis omnibus magis obviis; posticis ad angulum analem obscurioribus, ciliis fuscis inter venas pallidioribus: palpis niveis, segmento ultimo nigro; plica costali obvia.

♀ mari similis, sed plica nulla.

Hab. MEXICO, Atoyac (*H. H. Smith*), Paso de San Juan (*W. Schaus*); HONDURAS (*Dyson*); PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*), Taboga I. (*J. J. Walker*).—SOUTH AMERICA, Guiana, Amazons Valley, Eastern ¹ and Southern Brazil.

This pretty species was described by Felder in 1867 from a specimen in his collection from Bahia, but it had long previously been obtained by Bates at Ega, in the Upper Amazons Valley. We now know that it has a very wide range, extending to the Brazilian provinces of Rio Grande and Matto Grosso in the south to the Mexican State of Vera Cruz in the north.

A specimen sent us by Dr. Staudinger is named "*E. albicuspis*, H.-S.," doubtless from Herrich-Schäffer's type. It agrees in every particular with *H. orcinus*, the former name having been applied to it a year later.

The male genitalia are peculiar, and unlike those of any species here placed near *Hydrænomia*. The tegumen is short, cleft at the end, the two points divergent; the scaphium is not strongly developed; the harpes are concave at the end, from the middle of the depression is a rounded lobe covered with dentate papillæ, and serrate towards the base of the upper edge. (See Tab. LXXXI. fig. 18.)

PARADROS.

Paradros, Watson, P. Z. S. 1893, p. 39.

Phareas, Plötz, Stett. ent. Zeit. 1883, p. 451 (partim).

Mr. Watson's type of this genus is *Eudamus phœnice*, Hew., with which *E. formosus*, Felder, is strictly congeneric. The latter species occurs within our limits, as well as *E. oriander*, Hew. Four other species are found in various parts of South America.

The antennæ are long, and have a long, slightly swollen club bent into an even curve and ending in a fine point. Palpi with the third joint long, slender, and porrect. Primaries with a slightly arched costa; outer margin convex, cell about two-thirds the length of the wing; third median segment long, equal to the basal segment, the second segment being half as long again; lower discocellular rather short, shorter than the middle discocellular. Secondaries with a slight anal lobe; the third median segment very short,

the second median branch starting just before the end of the cell, second median and second subcostal segments subequal. Hind tibiæ with two pairs of spurs and a full dorsal crest or mane. The male has a distinct costal fold.

All the species of this genus have characteristic under surfaces to the wings, which are strongly marked with yellow and white, and have a rich purple-red suffusion over the darker portions of the outer half.

Mr. Watson places *P. formosus* in the genus *Lignyostola*; but we think this is wrong, for it is closely allied to *P. phœnice*, the specific characters even being not very pronounced.

1. *Paradros formosus*. (Tab. LXXXI. figg. 19, 20, 21 ♂.)

Eudamus formosus, Feld. Reise d. Nov., Lep. p. 511, t. 71. ff. 6, 7¹.

Phareas formosus, Plötz, Stett. ent. Zeit. 1883, p. 453².

Lignyostola formosus, Wats. P. Z. S. 1893, p. 39³.

Alis saturate fuscis; anticis ad basin fulvo striolatis, macula ad medium marginis interni, supra venam submedianam ejusdem coloris, maculis duabus subquadratis, una cellulari, altera infra eam, duabus ultra eas et punctis duobus subapicalibus semihyalinis sulphureo tinctis; posticis fasciis duabus transversis semimaculosis et costa ad basin fulvis, ciliis quoque fulvis: subtus ochraceo-fuscis lilacenti-purpureo suffusis; anticis ad basin et areæ costalis triente basali ochraceo-fulvis, maculis sicut in pagina superiore, area interna nigricante; posticis ad basin et margine interno ochraceo-fulvis, vitta irregulari literam **C** formante alba, angulo anali plaga magna rotunda nigra maculaque nigra supra eam: corpore supra fulvo; antennis nigris; palpis flavido-albis, segmento ultimo nigro; corpore subtus et pedibus pallide fulvis.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*), Veraguas (*Arcé*).—VENEZUELA; GUIANA²; NORTH BRAZIL.

This beautiful species was described and figured by Felder from a specimen of unknown origin. We have now ascertained that it has a wide range over the northern portion of the South-American continent, from the State of Panama to beyond the mouth of the Amazons.

Dr. Staudinger's collectors have obtained specimens of both sexes in the district of Chiriqui, and Arcé also found it near Santiago de Veraguas. The sexes hardly differ, the costal fold to the primaries of the male being absent in those of the female.

The male genitalia have a cleft tegumen ending in blunt rounded points; the scaphium is truncate, with a slight projecting lobe at the upper corner; the harpes are split horizontally, the upper portion produced into a long slightly deflected sharp rod, the lower portion blunt and bearing at the end a single large recurved tooth. (See Tab. LXXXI. fig. 21.)

2. *Paradros oriander*.

Eudamus oriander, Hew. Descr. Hesp. p. 20 (1867)¹.

P. formoso similis, sed posticis subtus usque ad basin lilacino-purpureis, colore albo fere evanesciente et ochraceo tincto distinguendus.

Hab. HONDURAS (*Mus. Brit.*).—AMAZONS VALLEY¹; MARANHAM.

In the catalogue of the Hewitson collection *E. oriander* is sunk as a synonym of *E. formosus*, but the two insects seem fairly separable by the characters given above. The difference between them is not sexual, as we have before us males and females of both forms.

P. oriander is included in this work on the evidence of a specimen in the British Museum said to have come from Honduras. The type was obtained by Bates during his journey to the Amazons, and we have one of his specimens from Para, where Mr. Herbert Smith also found it. Others in our collection are from Maranhão.

DREPHALYS.

Drephalys, Watson, P. Z. S. 1893, p. 34.

Closely allied to *Paradros*, but may be distinguished by the rather shorter terminal joint to the palpi, the more abruptly curved antennæ, and by the greater production of the secondaries. A distinct costal fold to the primaries in the male.

Mr. Watson established this genus for *Eudamus helixus*, Hew., and compared its characters with those of *Typhedanus*. There can be no doubt that *Drephalys* should be placed next *Paradros*, and the only question that arises is whether these two genera ought not to be merged into one. On the whole we think it best to keep them separate on the grounds stated above.

1. *Drephalys helixus*. (Tab. LXXXI. figg. 22, 23, 24 ♂.)

Eudamus helixus, Hew. Ann. & Mag. N. H. 1877, xx. p. 320¹.

Drephalys helixus, Wats. P. Z. S. 1893, p. 34².

Alis saturate fuscis; anticis ad basin viridi-fulvo radiatis, areæ costalis dimidio basali fulvo, macula ad medium marginis interni albida, maculis duabus semihyalinis, una cellulari, altera infra eam et duabus ultra eas, punctis duobus subapicalibus quoque semihyalinis; posticis fasciis duabus transversis maculosis fulvis, una per cellulam, altera discali: subtus rufescenti-fuscis; anticis medialiter nigricantibus, maculis sicut in pagina superiore ea ad medium marginis interni majore et albicantiore; posticis lilacino suffusis, area costali glauco atomata, fascia mediana lata arcuata alba, nec costam neque marginem internum attingente, et margine interno ipso pro dimidio distali albis: antennis nigris; palpis albidis, segmento terminali nigro; corpore subtus et pedibus ochraceis.

Hab. PANAMA, Calobre (*Arcé*), Lion Hill (*M^cLeannan*).

Hewitson described this species from a specimen from an unknown source. The only other examples we have seen were all sent us either by *Arcé* or *M^cLeannan* from the State of Panama.

There is no difference between the sexes, except that the male possesses a costal fold to the primaries.

The male genitalia have a cleft tegumen; the scaphium is well developed; the harpes are truncate, and from the middle of the terminal edge a short lobe arises. (See Tab. LXXXI. fig. 24.)

LIGNYOSTOLA.

Lignyostola, Mabilie, Le Nat. x. p. 221 (1888); Wats. P. Z. S. 1893, p. 39.

The type of this genus is *Telegonus lacydus*, Druce, redescribed by M. Mabilie as *Lignyostola pemphigargyra*, and with it *L. crinissus* (Cr.) seems to be fairly congeneric. *Eudamus formosus*, Feld., included in this genus by Mr. Watson, belongs rather to *Paradros*, where we have placed it.

In many points of structure *Lignyostola* resembles *Paradros*, having similar antennæ and palpi; the outline of the wings, too, is much the same. In *Lignyostola* the third segment is shorter in proportion to the second than it is in *Paradros*, and the discocellulars are more oblique to the axis of the wing. The hind tibiæ have an abdominal as well as a dorsal fringe. Both genera have a costal fold to the primaries of the male.

The genus has a wide range in South America, but we have not traced it north of Nicaragua in Central America.

1. *Lignyostola lacydus*. (Tab. LXXXI. fig. 25 ♂.)

Telegonus lacydus, Druce, P. Z. S. 1876, p. 247, t. 18. f. 10¹.

Lignyostola lacydus, Wats. P. Z. S. 1893, p. 39².

Lignyostola pemphigargyra, Mab. Le Nat. x. p. 221 (1888)³.

Alis saturate brunneis unicoloribus immaculatis: subtus pallidioribus: palpis et genis ferrugineis; capite summo indistincte ferrugineo punctato; corpore toto alis concolore.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*³). —COLOMBIA; UPPER AMAZONS VALLEY; EASTERN PERU¹.

Mr. Druce's types of this species now before us formed part of Mr. Bartlett's collection made on the Ucayali River in Eastern Peru¹. Another specimen, formerly in Mr. Druce's possession, came from Villa Nova in the Valley of the Amazons. We have also a specimen from San Martin in the Llanos of the Rio Meta in Colombia. With these southern specimens several from our country agree, including one lent us by Dr. Staudinger with M. Mabilie's name *Lignyostola pemphigargyra* attached to it.

Though the wings are of a uniform dark brown, the species may readily be recognized by the shape of the palpi and their ferruginous colour.

The male genitalia have a cleft tegumen; the scaphium is well developed; the harpes are truncate, the terminal edge concave, a prominent tooth arising from the middle, the lower corner is sharp-pointed, and the upper corner has a series of fine but distinct serrations. (See Tab. LXXXI. fig. 25.)

2. *Lignyostola crinissus*.

Papilio crinissus, Cr. Pap. Ex. t. 300. ff. G, H¹.

Phareas crinissus, Plötz, Stett. ent. Zeit. 1883, p. 452².

Lignyostola crinissus, Wats. P. Z. S. 1893, p. 39³.

Alis fulvescenti-brunneis ad basin fulvis; anticis macula cellulari elongata, introrsum leviter extrorsum profunde excisa, altera parva infra eam, altera ovali ad cellulæ finem, duabus submarginalibus et quatuor

subapicalibus semihyalinis fulvo tinctis; posticis fasciis duabus evanescentibus pallide fulvis, una ad cellulæ finem, altera discali: subtus ut supra, alis ad basin viridi lavatis; anticis maculis duabus alteris costalibus supra macula cellulari; posticis plaga mediana irregulari fasciaque irregulari angusta submarginali: antennis nigris, corpore fulvido, capite albido maculato, palpis et corpore subtus albidis; plica costali obvia.

♀ mari similis, sed plica costali nulla.

Hab. COSTA RICA (*Van Patten*).—GUIANA¹; AMAZONS VALLEY.

Several specimens of both sexes of this species were in a collection made by Mr. Van Patten in Costa Rica, but we have no other evidence of the occurrence of *Lignyostola criniscus* within our limits. These specimens agree with our series from the Amazons Valley and Guiana and with Cramer's figure, which shows the diaphanous spots on the primaries very plainly, and also the dark border to the secondaries beneath, broken by an irregular band of the same colour as the base of the wings.

The male genitalia have a cleft tegumen, the points depressed and divergent; the scaphium is well developed and granular towards the ends; the harpes are split horizontally, the two points diverging and horn-like, the lower one sharp, the upper one blunt: a very different structure from that of *L. lacydus*.

HYALOTHYRUS.

Hyalothyрус, Mabilie, Ann. Soc. Ent. Belg. xxi. p. 23 (1878); Wats. P. Z. S. 1893, p. 40.

Mr. Watson states that the members of this genus have only one pair of spurs to the hind tibiæ; but the only species that has this character is *H. infernalis* (Möschl.). *H. nitocris* (Cr.), the type of the genus, *H. neleus*, and *H. priscus* (Feld.) all have the second subterminal pair of spurs. It therefore becomes a question if the absence of the second pair of spurs is of much importance, *H. infernalis* in other respects being obviously allied to the other species of the genus.

The antennæ are rather long, the club very slender, slightly bent, and drawn to a fine point at the end. Palpi with a long projecting porrect terminal joint. Primaries with arched costa and rather pointed apex, the outer margin convex; cell long, quite three-fourths the length of the wing; the upper discocellular long, the middle and lower discocellulars short and subequal; third median segment short, the second double the third; discocellulars of secondaries feeble, third median segment long, the second segment about equal to the second subcostal segment, anal angle slightly lobed, outer margin rounded. Hind tibiæ with two pairs of spurs and a dorsal crest. Primaries of the male with a costal fold.

The species of *Hyalothyрус* range from Nicaragua to Guiana and the Amazons Valley, only one, *H. neleus*, occurring within our borders.

1. *Hyalothyрус neleus*. (Tab. LXXXI. fig. 27 ♀.)

Papilio neleus, Linn. Mus. Ulr. p. 260; Syst. Nat. i. pt. 2, p. 792 (1767) (ex Clerck, Ic. Ins. t. 45. f. 2).

Hyalothyрус neleus, Mab. Ann. Soc. Ent. Belg. xxi. p. 23; Wats. P. Z. S. 1893, p. 30.

♀. Alis fuscis; anticis maculis undecem semihyalinis notatis, una cellulari, duabus ad angulum analem, una rami mediani secundi utrinque, una ad cellulæ finem et quinque subapicalibus in linea irregulari arcuata positis; posticis margine costali et margine externo ad angulum analem decrescente fuscis, area interna et margine interno niveis: subtus ut supra: capite summo albo punctato; genis, corpore subtus et abdomine toto niveis.

♂ nobis adhuc ignotus.

Hab. NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*), Veraguas (*Arcé*).—AMAZONS VALLEY; GUIANA.

We have as yet only seen female specimens of this species; but we have a male from Colombia which we refer to *Phareas priscus*, Feld., and this has a costal fold to the primaries.

Whether these two forms are really distinct is questionable, our materials are not sufficient to determine the point. The few Central-American specimens we have seen agree closely with others from Guiana and the Amazons Valley, and also with Clerck's figure, which represents the Linnean type.

PHANUS.

Phanus, Hübner, Verz. bek. Schm. p. 114 (1816); Wats. P. Z. S. 1893, p. 40.

The single species contained in this genus is not liable to be confused with any other, the wings, both primaries and secondaries, having diaphanous marks far exceeding in size and number those of any other Hesperid.

The antennæ have a short club curved before the middle into a strong hook, tapering to a fine point. Palpi with a short but distinct terminal joint, divergent as in the preceding genera. The primaries have a gradually arched costa, the outer margin convex, nearly straight towards the anal angle, which is acute; the cell is long, quite three-quarters the length of the wing; the upper discocellular distinct, middle and lower discocellulars subequal in a slightly oblique line to the axis of the wing; third median segment short, not more than half the second segment; discocellulars of the secondaries very feeble, the lower meeting the median at the origin of the second branch, so that there is no third median segment, second median short, but longer than the second subcostal segment. Hind tibiæ with two pairs of spurs and a dorsal crest of hairs. Primaries of the male with a costal fold.

The type species ranges over the greater part of Tropical America, from the Mexican State of Vera Cruz to South-eastern Brazil.

1. *Phanus vitreus*. (Tab. LXXXI. fig. 26 ♂.)

Papilio vitreus, Cr. Pap. Ex. t. 366. f. D¹.

Phanus vitreus, Hübn. Verz. bek. Schm. p. 114²; Wats. P. Z. S. 1893, p. 30³.

Entheus marshalli, Kirby, Sc. Pr. Roy. Dubl. Soc. (2) ii. p. 339 (1880)⁴; Waterh. Aid ident. Ins. i. t. 37⁵.

Alis nigris; anticis striis duabus cellularibus ad basin confluentibus, inferiore interrupta, macula magna

subtriangulari infra cellulam extrorsum profunde sinuata, altera subquadrata ultra eam extrorsum quoque sinuata, duabus ad angulum analem et punctis quinque subapicalibus in linea arcuata positis clare hyalinis, margine interno squamis pallidis notato; posticis cellula fere omnino et maculis ultra eam in seriebus duabus positis hyalinis, macula angulo anali proximo alba: subtus ut supra: antennis nigris, capite albo punctato, corpore supra pallide fusco crinito, palpis et corpore subtus fulvo-grisescens.

♀ mari similis.

Hab. MEXICO, Jalapa and Coatepec (*W. Schaus*), Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, forests of N. Vera Paz, Polochic Valley (*F. D. G. & O. S.*), Senahu (*Champion*); HONDURAS (*Dyson*), Ruatan I. (*Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*); PANAMA, David, Bugaba (*Champion*), Chiriqui (*Trötsch, in mus. Staudinger*), Calobre (*Arcé*).—SOUTH AMERICA generally from Colombia to Trinidad⁴, Guiana¹, and South Brazil.

Our description of this variable species is taken from a male from Nicaragua agreeing closely with Cramer's figure, and this form is found wherever the species occurs. With these we find a very dark form in which the black colour is increased at the expense of the diaphanous spots. This may be a seasonal variety, for it is so universally spread with the more typical insect that we cannot believe the differences are of specific value. Mr. Kirby's *Entheus marshalli*⁴ from Trinidad is somewhat intermediate between the two forms just referred to. We have precisely similar specimens from Guatemala and elsewhere, and we have no doubt that it is only a variety of *P. vitreus*.

P. vitreus is not a common insect at the extreme northern limits of its range, and we have seen but few specimens from Vera Cruz and Guatemala, and those all from the hot lowlands of the eastern side of the mountains. It becomes more abundant as we proceed southwards, and in South America must be one of the most numerous in individuals of the Hesperiidæ.

The male genitalia have the end of the tegumen rather tumid, cleft at the end, the arms diverging, and each terminating with a double or appendiculate claw; the scaphium is well developed; the harpes are drawn to a blunt point, the dorsal edge is raised at the highest point in a truncate lobe, separated from the edge by a shallow fissure on the proximal side and a deeper one on the distal side. (See Tab. LXXXI. fig. 26.)

b. Hind tibiæ with a single terminal pair of spurs.

ENTHEUS.

Entheus, Hübner, Verz. bek. Schm. p. 114 (1816); Plötz, Stett. ent. Zeit. 1883, p. 456; Wats. P. Z. S. 1893, p. 40.

Phareas, Plötz, Stett. ent. Zeit. 1883, p. 451 (partim).

Mr. Watson properly restricts this genus to the type *E. peleus* and its immediate allies, numbering in all about seven species. The sexes, so far as we know them, of most of the species are so different in their coloration that from the earliest times males

and females have been described as different species. Plötz even goes so far as to put them in different genera—the males in *Entheus*, and the females in *Phareas*.

The antennæ are long, slender, the club slender and curved into a crescent. Palpi porrect, divergent, the third joint long and slender. Primaries short, the inner margin longer than the outer, the middle portion of the costal margin straight, the cell about two-thirds the length of the wing, the costal area wide, and the subcostal branches well separated; upper discocellular short, middle and lower discocellulars subequal in a slightly oblique line to the axis of the wing; third median segment very short, hardly a sixth of the length of the second segment; discocellulars of the secondaries very faint, the radial just visible, second median branch from the end of the cell and twice as long as the second subcostal branch, the anal angle very slightly projecting, outer margin much rounded. Hind tibiæ short, much swollen distally, and with a single terminal pair of spurs; a long tuft of hair from the upper edge of the proximal end.

No costal fold in the male. Sexes widely different in coloration.

The range of *Entheus* extends from Guatemala to South Brazil, two species occurring within our limits.

1. *Entheus peleus*.

Papilio peleus, Linn. Mus. Ulr. p. 327¹; Syst. Nat. i. pt. 2, p. 792² (ex Clerck, Icon. t. 45. f. 5³); Cram. Pap. Ex. t. 284. f. F⁴.

Papilio talaus, Linn. Mus. Ulr. p. 259⁵; Syst. Nat. i. pt. 2, p. 792⁶ (ex Clerck, Icon. t. 45. f. 1⁷); Cram. Pap. Ex. t. 393. f. C⁸.

Paraminus talaus, Hübn. Samml. ex. Schmett. ii. t. 154⁹.

Entheus talaus, Wats. P. Z. S. 1893, p. 40¹⁰.

Papilio priassus, Linn. Mus. Ulr. p. 319; Syst. Nat. i. pt. 2, p. 793¹¹.

Entheus priassus, Auriv. K. Vet.-Ak. Handl. xix. 5, p. 110¹².

♂. Alis nigricanti-brunneis; anticis fascia lata transversa a costa ad angulum analem rufo-aurantia, fascia altera subapicali et macula quadrangulari inter eas ad marginem externum pallidioribus: subtus omnino ut supra: capite summo aurantio maculato, palpis (apice nigro excepto) et genis aurantiis.

♀. Alis anticis dimidio distali maculis semihyalinis notato, una in cellula, altera bifida infra eam ad angulum analem, una quadrangulari ad medium marginis externi, aliisque sex in linea fracta positae ad angulum apicalem, cellula ad basin rufescente; posticis areæ interna usque ad marginem internum alba: subtus ut supra, alis ad basin albis.

Hab. PANAMA (*Ribbe*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA from Colombia and Guiana to South Brazil.

Taking Clerck's and Cramer's figures as the best representatives of *Papilio peleus* rather than their figures of *Papilio talaus*, which represent a female of a species of this group, and about which there may be some doubt, we use *E. peleus* as the name of this common species. Regarding the female this difficulty arises, that little difference exists between that sex of *E. peleus*, *E. gentius*, *E. lemna*, and some others, the males being very distinct, so that it is a matter of some difficulty to assign to each species its

proper female. So far as regards specimens from Panama, where alone in our country *E. peleus* occurs, we are on more certain ground, and there can be no doubt that the specimens described above as sexes really bear that relationship to one another.

Though widely distributed over the southern continent, *E. peleus* just enters our fauna, where the only specimens we have seen of it were all taken on the line of the Panama Railway. In Costa Rica and thence northward to Guatemala *E. matho* entirely takes its place.

As a rule, male specimens are very uniform as regards the markings of the apical portion of the primaries; we notice, however, that in nearly all our southern examples the spot between the two orange bands is confluent with the inner band, whereas in Panama and Colombian examples it occupies an independent position between the two bands; this is brought about by the shortening of this spot from the proximal end. The shortening carried further gives us *E. matho*, so far as this character alone is concerned.

The male genitalia have a very peculiar tegumen, which is cleft at the end, the arms diverging and each expanding into a vertical triangular plate, the lower end of which is acute, the outer edge having two teeth; from near the middle proceed two rods—one on either side of the middle line—as long as the tegumen itself. The scaphium is highly developed; the harpes are rounded at the end, and have a serrate lobe turned downwards at the end.

2. *Entheus matho*. (Tab. LXXXI. figg. 28, 29 ♂, 30 ♀.)

Entheus matho, Godm. & Salv. P. Z. S. 1879, p. 154¹.

♂. *E. talao* similis, sed alis rufescentioribus; anticis cellula ad basin rufa, linea transversa flavicantiore, macula inter fascias exteriore approximante; posticis area interna flavido-albicante.

♀. *feminæ E. talai* similis, sed macula inter fascias angusta et prope fasciam externam sita.

Hab. GUATEMALA, Senahu (*Champion*), Choctum (*F. D. G. & O. S.*¹); NICARAGUA, Chontales (*Belt*¹); COSTA RICA, Caché (*Rogers*).

This is a northern form of *E. peleus*, but may be readily recognized by the characters pointed out above. We have only seen two male specimens from Guatemala; but in Nicaragua it appears to be more common, as Belt's collection contains several examples.

The male genitalia resemble those of *E. peleus*. (See Tab. LXXXI. fig. 29.)

SECTION B.

Club of the antennæ usually sickle-shaped, but sometimes hooked, the apex acute (except in the second subdivision containing *Hesperia* and its allies). The third joint of the palpi varies greatly, being short in many instances, as in *Anastrus* and its allies, moderately long, as in *Camptopleura*, very long and drooping, or long and porrect, as in *Anisochoria*. This joint is never curved backwards as in

some *Pamphilinæ*. The cell of the primaries is usually short, and the discocellulars in a straight line, more transverse than in the members of Section **A**; the lower discocellular is usually longer than the middle, the lower radial thus lying nearer to the upper radial than to the median; there is frequently a costal fold. The hind legs are often furnished with a long tuft of hairs attached to the inside of the proximal end of the tibiæ; this tuft, when the leg is pressed close to the body, lies in a groove formed by the projecting portion of the metasternum over the proximal end of the abdomen; the hind tibiæ always have two pairs of spurs except in *Pythonides amaryllis*, Staud., and its immediate allies. The male genitalia have, for the most part, symmetrical harpes, but in a considerable number they are asymmetrical, and many of these, perhaps, show a relationship to *Thanaos*, in which an extreme degree of asymmetry is shown.

In the following arrangement we have been obliged to diverge considerably from the generic key elaborated by Mr. Watson. The number of forms not included by him, which have now to be considered, renders some change necessary. We are far from satisfied with the arrangement now adopted, which, treating of a limited fauna, is very imperfect. Nearly every character is subject to a graduated change from the extreme forms in which it appears, and it is only by the combination of a number of these unstable features that some natural combinations can be brought together. A formal key to the genera does not give at all satisfactory results, as strained interpretations of unstable characters almost inevitably result. We therefore have not attempted to do more than give a few leading headings as a help to distinguish the genera. We may add that the examination of male characters for the purpose of discriminating species and even genera seems to us to be of increasing importance, and the value of these characters in complicated cases like the present is, we believe, likely to be enhanced.

The members of this section are distributed over the tropical and temperate portions of nearly the whole world, Tropical America possessing the larger share.

a. Antennæ with a short terminal hook, the bent portion not more than half the length of the swollen club.

a'. Secondaries of the male without a tuft of hair near the base of the costal margin; subcostal nervure of the secondaries and its branch not swollen near their junction.

ARTEUROTIA.

Arteurotia, Butler & Druce, Cist. Ent. i. p. 112 (1872); Wats. P. Z. S. 1893, p. 45.

This genus was described by Messrs. Butler and Druce from the type and only species *A. tractipennis*. Several other species have since been described by M. Mabilie and placed in it; but we doubt their being really congeneric. None of the latter

appear to have the conspicuous patch of modified scales on the secondaries of the male so obvious in *A. tractipennis* and an essential feature of the genus.

The antennæ have a stout club; the hooked terminal portion is short, and not more than half the length of the rest of the club. Palpi porrect, the third joint obtusely conical. Primaries with the outer and inner margins subequal; no costal fold; cell less than two-thirds the length of the wing; discocellulars nearly transverse, the lower longer than the middle; third median segment short, about one fourth the second segment. Secondaries produced at the anal angle; cell wide; discocellulars feeble, subequal; radial just visible; third median segment very short, second median and second subcostal segments subequal; a large patch of peculiar scales towards the apical angle; no tuft of hairs; subcostal and its first branch not swollen. Hind tibiæ with two pairs of spurs; both hind and intermediate tibiæ spiny. Male genitalia with asymmetrical harpes.

Arteurotia, as restricted to *A. tractipennis*, is confined to Southern Mexico and Central America.

1. *Arteurotia tractipennis*. (Tab. LXXXII. fig. 1 ♂.)

Arteurotia tractipennis, Butl. & Druce, Cist. Ent. i. p. 112 (1872)¹; P. Z. S. 1874, p. 367²; Butl. Lep. Ex. p. 187, t. lxiv. f. 5³; Plötz, Berl. ent. Zeitschr. 1882, p. 256⁴.

Helias (?) *ribbei*, Staud. Verh. zool.-bot. Ges. Wien, xxv. p. 117 (1875)⁵.

Alis pallide fuscis griseo atomatis; anticeis margine externo et fasciis duabus evanescentibus, transversis, fuscis, plaga subtriangulari in costa ad apicem quoque fusca, macula intra eam et duabus ultra eam albis; posticeis plaga magna costali angulum apicalem vix attingente nigricante albido circumcincta, margine externo fusco: subtus rufescenti-fuscis, marginibus externis (ciliis exceptis) et area basali griseo-albicantibus; posticeis maculis albidis discalibus indistinctis notatis; palpis supra fuscis, subtus albis, apicibus nigris.

♀ mari similis, sed alis magis truncatis; anticeis plaga magna fusca in dimidio proximo; posticeis plaga costali nulla, sed fusco indistincte bifasciato; subtus omnino magis rufescentibus.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Choctum (*F. D. G. & O. S.*), Rio Naranjo and Zapote (*Champion*); COSTA RICA (*Van Patten*^{1 2 3}); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe*⁵, *Arcé*), Veraguas (*Arcé*).

This peculiar species, which has no near ally that we know of, is tolerably abundant in the hotter parts of Eastern Mexico, Guatemala, and thence southwards to the State of Panama. Mr. Herbert Smith captured a good series, including both sexes, at Atoyac in Vera Cruz, in the month of April, and Mr. Champion also found it in several parts of Guatemala, and in abundance at Bugaba, in the State of Panama.

The specimen described by Messrs. Butler and Druce formed part of Van Patten's Costa Rica collection; but some years previously we captured a worn example at Choctum, in Eastern Guatemala. Dr. Staudinger bestowed the name of *Helias ribbei* on this species, from specimens collected by Herr Ribbe at Chiriqui⁵.

The large patch of modified scales on the secondaries of the male is a conspicuous feature in this species.

The genitalia of the male have a simple tegumen, ending in a single pointed rod, bent into a hook at the end. The harpes are not symmetrical; both are cleft horizontally, each portion being drawn into a curved rod: in the right harpe the lower rod is much the longer of the two and is bent upwards, the short upper rod straighter, almost crossing it; in the left harpe the upper rod is the longer and is more curved, the lower much shorter and straighter. (See Tab. LXXXII. fig. 1.)

PYTHONIDES.

Pythonides, Hübner, Verz. bek. Schm. p. 110 (1816); Wats. P. Z. S. 1893, p. 51 (partim).

Mr. Watson divides this genus into two sections, in one of which he states that the species have two pairs of spurs on the hind tibiæ and no tibial tuft; in the other only the terminal pair of spurs is found, and there is a long tuft of hair from the proximal end of the hind tibiæ. In reality there are three sections of *Pythonides* as understood by Mr. Watson, for besides the two noticed by him there is a third, of which *P. loxus* is typical, in which both pairs of spurs are present, besides the tibial tuft.

On looking further into the question we find that the first of these sections, containing the typical species *P. cerialis*, is separable from the others, on the character of the antennæ, which have a club and hook agreeing with other genera of this division. We therefore use the name *Pythonides* in this restricted sense, and place the other divisions elsewhere.

The antennæ have a small swollen club, and end in a short hook as in all the members of this division. The palpi are porrect, the terminal joint short and obtusely conical. The primaries are somewhat elongated, the inner margin rather longer than the outer, and slightly concave near the anal angle; no costal fold; the cell is less than two-thirds the length of the wing; the discocellulars nearly transverse, the lower and middle subequal; the third median segment about one-third the second segment. Secondaries slightly produced at the anal angle; discocellulars feeble, the lower longer than the upper; the radial just visible; third median segment very short, the second subcostal segment considerably shorter than the second median segment; no sexual patch or tuft of hairs nor swollen nervures. The hind legs have two pairs of spurs to the tibiæ, but no tibial tuft. The harpes of the male genitalia are symmetrical.

The range of *Pythonides* extends over nearly the whole of tropical South America, eleven species occurring within our borders.

1. *Pythonides cerialis*. (Tab. LXXXII. fig. 2 ♂.)

Papilio cerialis, Cr. Pap. Ex. t. 392. ff. N, O¹; Stoll, Suppl. Cr. t. 10. ff. 1 A–C².

Pythonides cerialis, Plötz, Jahrb. Nass. Ver. xxxvii. p. 7 (1884)³; Wats. P. Z. S. 1893, p. 51⁴.

Alis fuscis; anticis fascia submarginali pallida ad angulum apicalem et ad angulum analem squamis paucis glaucis notata, maculis quinque, venis bene divisim plagam medianam formantibus, macula in cellula extrorsum profunde sinuata, punctis quatuor in paribus ad angulum apicalem; posticis fasciis duabus indistinctis

glauescentibus transversis, una per cellulam altera discali: subtus fuscis; anticis medialiter pallidioribus, punctis irregularibus apud marginem externum, maculis reliquis sicut in pagina superiore; posticis plus quam dimidio basali nitide cæruleo, margine externo late fusco, squamis quibusdam glaucis apud angulum analem.

♀ mari similis, sed aliis anticis magis abbreviatis.

Hab. MEXICO, Mazatlan (*Forrer*), Cordova (*Rümeli*), Paso de San Juan (*W. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panzos, Cahabon, Zapote (*Champion*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Trötsch, in mus. Staudinger*), Calobre (*Arcé*).—SOUTH AMERICA generally from Colombia to Paraguay and South Brazil.

P. cerialis is one of the commonest and most widely ranging species of the genus, extending from the hotter low-lying districts of Mexico, over the whole of tropical America to Southern Paraguay. We have a large series of specimens from various points of this wide area, showing no tangible differences. The hind tibiæ have two pairs of spurs, but no tibial tuft of hairs.

The male genitalia have a simple tegumen ending in a slightly depressed single rod; the scaphium hangs close to the under surface of the tegumen: the harpes have a very sinuous dorsal edge, forming a lobe directed outwards near the middle; the end of each harpe is a tapering simple lobe with a blunt rounded end. (See Tab. LXXXII. fig. 2.)

2. *Pythonides contubernalis*. (Tab. LXXXII. figg. 3, 4, 5 ♂.)

Pythonides contubernalis, Mab. Bull. Soc. Ent. Belg. xxvii. p. lxxvi (1883) ¹.

Pythonides praxis, Plötz, Jahrb. Nass. Ver. xxxvii. p. 7 (1884) ²?

P. ceriali similis, sed anticis maculis omnibus semihyalinis minoribus, fascia submarginali interrupta, omnino læte cærulea; posticis fasciis duabus transversis læte cæruleis, fascia quoque maculosa ad marginem externum ejusdem coloris: subtus posticis colore cæruleo multo magis extenso ad marginem externum extendente, angulo apicali et linea submarginali indecisa tantum nigricanti-fuscis.

♀ mari similis, fasciis posticarum minus vivide cæruleis.

Hab. GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panama (*Champion*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch, in mus. Staudinger*), Lion Hill (*M. Leannan*).—AMAZONS VALLEY; GUIANA ^{1 2}; BRAZIL ¹.

A male specimen from Chiriqui, named by M. Mabilie and kindly lent us by Dr. Staudinger, enables us to determine this species with certainty. It is nearly allied to *P. cerialis*, but may be readily recognized by the smaller spots on the primaries and by the two conspicuous blue bands on the secondaries. These differences are confirmed by the male genitalia of the two species. The hind tibiæ have two pairs of spurs, but no tibial tuft of hairs.

P. contubernalis was described by M. Mabilie ¹ from specimens in his own collection from Guiana and Brazil. We have a good series from Bugaba and Panama, a few from Guatemala, and one from the Amazons Valley from near the mouth of the Rio Napo.

The male genitalia differ from those of *P. cerialis* in having a more slender tegumen; the dorsal edge of the harpes is much straighter and only slightly undulating from the middle to the extremity, which again is less produced and blunter. (See Tab. LXXXII. fig. 5.)

3. *Pythonides anicius*, sp. n. (Tab. LXXXII. figg. 6, 7 ♂.)

P. ceriali quoque similis, sed anticis fere omnino immaculatis, fascia submarginali cærulea multo interrupta, maculis semihyalinis nullis; posticis sicut in *P. contubernali*, sed fasciis cæruleis magis saturatis: subtus anticis unicoloribus; posticis fere omnino cæruleis, angulo apicali et linea interrupta submarginali tantum fuscis.

Hab. GUATEMALA, Zapote (*Champion*).

We have two males of this form, which appears to be distinct from *P. contubernalis*, its nearest ally. The secondaries have two transverse blue bands as in *P. contubernalis*, but the primaries both above and beneath are nearly uniform, and with the hyaline spots wholly absent or evanescent. The hind tibiæ, as in the allied forms, have two pairs of spurs but no tibial tuft. The harpes of the male genitalia are shorter and more rounded at the extremity, and the dorsal edge is less undulating; the scaphium, too, appears to be more produced.

4. *Pythonides belti*, sp. n. (Tab. LXXXII. figg. 8, 9, 10 ♂.)

Helias paterculus, Hew. Cat. Coll. p. 239 (nec Herr.-Sch.)¹.

Alis fuscis glauco atomatis; anticis abbreviatis, margine externo convexo ad angulum analem sensim exciso, lineolis irregularibus transversis nigris notatis, punctis tribus medianis semihyalinis nigro limbatis, uno parvo subtriangulari intra cellulam, altero subquadrato infra eum, tertio parvo elongato extra eos; punctis tribus subapicalibus quoque semihyalinis, margine externo fulvo variegato; posticis angulo anali producto, lineolis valde irregularibus nigris, una basali, duabus discalibus angulum analem versus concurrentibus et una submarginali maculosa: subtus anticis nigro-fuscis ad costam et ad marginem externum fulvo variegatis, maculis semihyalinis ut supra; posticis læte cæruleis, ad angulum apicalem fuscis, punctis nigris juxta eum.

Hab. NICARAGUA, Chontales (*Belt*¹).

We have four male specimens of this pretty species from Belt's collection, and there are four in the Hewitson collection from the same source under Herrich-Schäffer's name *Helias paterculus*. Though doubtless belonging to this section of *Pythonides*, *P. belti* is rather aberrant, the outer margin of the primaries being more convex than in *P. cerialis*, giving those wings a somewhat truncate appearance; the secondaries, too, have the anal angle more produced than usual in other members of *Pythonides*. The hind tibiæ have two pairs of spurs but no tibial tuft.

The male genitalia have a simple tegumen ending in a single point; the scaphium is well developed; the harpes end in a long slightly upturned lobe, and there is another short lobe starting from near the base of the dorsal edge; this arrangement is not unlike that of *P. cerialis*. (See Tab. LXXXII. fig. 10.)

5. *Pythonides lugubris*. (Tab. LXXXII. figg. 11, 12, 13 ♂.)

Leucochitonea lugubris, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 476¹.

Achlyodes ophia, Butl. Trans. Ent. Soc. 1870, p. 517².

Pterygospidea sephara, Hew. Ann. & Mag. N. H. 1878, i. p. 344³.

Pythonides cobarus, Möschl. Verh. z.-b. Ges. Wien, 1878, p. 211⁴; Plötz, Jahrb. Nass. Ver. xxxvii. p. 6 (1884)⁵.

Udranomía ambla, Herr.-Schäff. apud Plötz, Berl. ent. Zeitschr. xxvi. p. 266 (1882)⁶.

Alis anticis abbreviatis, margine externo valde rotundato ad angulum analem incurvato, margine interno leviter arcuato, angulo anali paulo hamato, brunneis, maculis hyalinis fere ut in *P. ceriali*, omnibus nigro limbatis, punctis subapicalibus quatuor in linea irregulari positis, secundo a costa maximo, quarto minimo, linea irregulari submarginali medialiter obsoleta, altera obliqua ad medium marginis interni indistincta, nigricantibus; posticis ad finem venæ subcostalis productis, brunneis fere unicoloribus, fascia lata transversa ad basin nigricante, altera abbreviata ad angulum apicalem, punctis indistinctis discalibus ejusdem coloris: subtus ut supra, sed pallidioribus maculis et fasciis omnibus valde indistinctis; palpis subtus albidis ad apicem fuscis.

♀ mari similis.

Hab. MEXICO, Orizaba (*Hedemann*¹), Jalapa (*W. Schaus*), Coatepec (*Brooks*), Atoyac (*H. H. Smith, Schumann*); GUATEMALA, San Gerónimo, Zapote (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA, San Francisco, Caché (*Rogers*).—COLOMBIA⁴, VENEZUELA²; TRINIDAD; BRAZIL³.

We have examined the types of *Achlyodes ophia*, Butler, *Pterygospidea sephara*, Hewitson, and *Pythonides cobarus*, Möschler, and have also before us a specimen named by Semper *Udranomía ambla* from Plötz's drawings, and can find no specific difference between them. Having also a good series of specimens from the Mexican State of Vera Cruz, whence R. Felder's *Leucochitonea lugubris* was derived, the description of which agrees closely with the present insect, we have no hesitation in adopting the latter specific name for it. *Pythonides lugubris*, as we propose to call this species, affords a good illustration of the confused state of the nomenclature of the Hesperiidæ, as it has received five specific names at the hands of various authors, and been referred to as many genera by them!

It is a fairly abundant species in Eastern Mexico, and thence southwards throughout Central America, and has also a wide range on the southern continent. Its nearest relative is *Pythonides truncata* (Hew.), from Bolivia; but it may readily be distinguished by the less angular secondaries and the absence of the blue-grey colour of the same wings beneath.

The male genitalia are simple; the tegumen is rather elongated and slightly depressed; the scaphium well developed and long; the harpes are symmetrical, rather long, and upturned, with a truncate end and a deep fissure on the dorsal edge. (See Tab. LXXXII. fig. 13.)

6. *Pythonides zera*. (Tab. LXXXII. figg. 14, 15, 16 ♂.)

Achlyodes zera, Butl. Trans. Ent. Soc. 1870, p. 514¹; Plötz, Jahrb. Nass. Ver. xxxvii. p. 20 (1884)².

Thanaos paterculus, Herr.-Schäff. Corr.-Blatt Regensb. xvii. p. 141 (1863)³?

Alis saturate schistaceis, anticis margine externo, costa ad apicem maculisque indistinctis discalibus brunneis, maculis duabus infra cellulam (inferiore majore), altera parva subapicali hyalinis, fascia submarginali interrupta, margine costali introrsum valde irregulari, fasciaque brevi obliqua ad medium marginis interni saturate brunneis; posticis fascia interrupta submarginali, altera lata ad basin et duabus indistinctis discalibus saturate brunneis: subtus omnino brunnescentioribus; anticis plaga magna ad angulum analem maculisque duabus ad costam ochraceo-brunneis; posticis dimidio costali ejusdem coloris fusco maculatis, dimidio interno usque ad medium marginis externi glauco-cærulescentibus; palpis infra glaucis.

Hab. COSTA RICA (*Van Patten*), Caché (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Ribbe*).—SOUTH AMERICA, Venezuela^{1 2} to Brazil².

This species was described by Mr. Butler from specimens in Mr. Druce's collection said to be from Venezuela¹. They agree with several examples in our collection and in that of Dr. Staudinger from Chiriqui, where the species appears to be not uncommon. We also have specimens from Costa Rica, and, in the south, from the neighbourhood of Rio Janeiro.

Dr. Staudinger has lent us specimens marked *T. paterculus*, Herrich-Schäffer; but this insect is so briefly described that we hesitate to substitute this name for Mr. Butler's, the types of which are before us.

The male genitalia resemble those of *P. lugubris* to a great extent, so far as the tegumen is concerned; the scaphium is long and reaches almost to the end of the tegumen: the harpes are symmetrical and are deeply cleft; the lower branch is a strong, curved, comparatively narrow rod; the upper branch is slender and curved downwards, reaching to about the centre of the circle, of which the outer margin of the lower branch is a portion of the circumference. (See Tab. LXXXII. fig. 16.)

7. *Pythonides menedemus*, sp. n. (Tab. LXXXII. figg. 17, 18 ♂.)

P. zerae similis, sed minor; anticis margine externo regulariter convexo, margine interno rectiore ad angulum analem haud hamato; posticis magis elongatis; anticis maculis semihyalinis minutis: subtus omnino obscurioribus, colore ochraceo vix tincto; posticis dimidio distali cretaceo-albo, ciliis fuscis.

Hab. PANAMA, Chiriqui (*Ribbe*).—AMAZONS.

Of this species we have two male specimens from Chiriqui, both of Herr Ribbe's collecting, and a third from Para taken by Mr. H. H. Smith. The species differs in many ways from *P. zera*, and is no doubt quite distinct.

8. *Pythonides hyacinthinus*. (Tab. LXXXII. figg. 19, 20, 21 ♂.)

Telemiades hyacinthinus, Mab. Pet. Nouv. Ent. ii. p. 165 (1877)¹.

P. zerae quoque affinis, sed alis sicut in *P. menedemo* formatis: subtus obscurior; posticis colore cæruleo angulo anali restricto.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*).

In the shape of its wings this species is more nearly allied to *P. menedemus* than to *P. zera*; but it is a rather larger insect, and the blue colour of the distal portion of the secondaries is more pronounced and of the same shade as in *P. zera*; whereas in *P. menedemus* the tint is a chalky-white, hardly shaded with blue at all.

Our Nicaraguan specimens agree with a named specimen of *Telemiades hyacinthinus*, kindly lent us by Dr. Staudinger, the type being in M. Mabilles' collection¹.

The harpes of the male genitalia are wide, rounded at the end to the upper corner, which bears a short slightly recurved tooth; on the dorsal edge near the base is a short narrow lobe, slightly directed forwards. (See Tab. LXXXII. fig. 21.)

9. **Pythonides scybis**, sp. n. (Tab. LXXXII. figg. 22, 23 ♂.)

P. zerae similis; anticis ad basin fere omnino nigricantibus, angulo anali haud hamato, margine interno fere recto; posticis maculis discalibus nigris, fere evanescentibus: subtus maculis omnibus obscuris minus obviis.

Hab. MEXICO, Atoyac (*H. H. Smith*); PANAMA, Chiriqui (*Ribbe*).—COLOMBIA; BOLIVIA.

There is a difference in the distribution of the blue colour of the secondaries in this species between the Mexican and more southern specimens, one of the latter of which is figured. In the former the inner margin of this colour is straight and reaches the middle of the outer margin, whereas in the latter it is curved and does not touch the margin until it approaches the anal angle. In all other respects our series presents no differences.

P. scybis differs from both *P. menedemus* and *P. hyacinthinus* in the shape of its secondaries, which are rounded and not produced at the anal angle.

10. **Pythonides phila**, sp. n. (Tab. LXXXII. figg. 24, 25 ♂.)

P. scybi, quoad colores paginæ alarum superioris, similis: subtus obscurioribus et colore cæruleo posticarum omnino absente distinguendus.

Hab. PANAMA, Chiriqui (*Ribbe*).

We have a single specimen of this species sent us by Dr. Staudinger. The absence of the blue colour on the underside of the secondaries at once distinguishes it from the four preceding species. From *P. pelopea*, which follows, it differs in its more ochraceous under surface, and in the absence of a dark border to the upper surface of both wings.

11. **Pythonides pelopea**, sp. n. (Tab. LXXXII. figg. 26, 27 ♂.)

Præcedenti similis, sed alis obscurioribus, extrorsum nigricante marginatis: subtus fusciscentioribus.

Hab. MEXICO, Sierra de Tepic (*W. B. Richardson*).—AMAZONS VALLEY; BRAZIL.

This is clearly a species distinct from any of the foregoing. Our single Mexican specimen is not in good condition, and we therefore figure one from São Paulo, Amazons, which agrees closely with it.

SPIONIADES.

Spioniades, Hübner, Verz. bek. Schm. p. 114 (1816); Wats. P. Z. S. 1893, p. 58.

Papilio artemides, Cramer, has been designated the type of this genus by Hübner, and with it *Nerula abbreviata* and *N. pelia* of M. Mabilie must be associated. *Nerula nautes* of the same author, which Mr. Watson considers the type of the genus *Nerula*, belongs elsewhere; and having tufts (in the male) on the secondaries, just as in *Cogia chalcas*, had best be placed next the genus *Cogia*, if not merged with it*.

The antennæ are like those of the other members of this section, having a rather stout club with a short attenuated end. The palpi have a short porrect terminal joint. The primaries are blunt, almost truncate, the outer margin being much rounded; the cell is less than two-thirds of the length of the wing, the subcostal branches well separated, the fourth subcostal segment considerably shorter than either of the two segments preceding it, the lower and middle discocellulars subequal and slightly oblique, the third median segment very short, the second longer than the first; the secondaries are slightly produced at the anal angle, the discocellulars and radial very feeble, the third median segment very short, the first median and first subcostal subequal. Hind tibiæ with two pairs of well-developed spurs, which are fringed along their sides next the joint; there is also a long tuft of hairs from the inside of the proximal end of the tibiæ.

The range of *Spioniades* extends from Nicaragua to Bolivia and the Brazilian provinces of Matto Grosso and Minas Geraes.

1. ***Spioniades artemides*.** (Tab. LXXXII. figg. 28, 29, 30 ♂.)

Papilio artemides, Cr. Pap. Ex. t. 391. ff. L, M¹.

Spioniades artemides, Hübn. Verz. bek. Schm. p. 114²; Wats. P. Z. S. 1893, p. 59³.

Alis anticis nigricantibus, squamis cærulescentibus sparsim atomatis, punctis quatuor subapicalibus in figura quadrata positis semihyalinis, alteris tribus (una costali duabus in cellula) lineisque angustis infra cellulam ejusdem coloris; posticis ad basin nigricantibus, angulo apicali brunneo, dimidio distali albo, maculis submarginalibus fuscis ea ad angulum analem maxima: subtus anticis et dimidio posticarum proximo fusco-nigricantibus, harum dimidio distali albo, maculis submarginalibus nullis: palpis infra griseis, abdomine ad apicem albo.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*), Lion Hill (*M^cLeannan*).—VENEZUELA; AMAZONS VALLEY; GUIANA¹; SOUTH BRAZIL.

In Cramer's figure of this species the hyaline spots of the primaries are scarcely shown, and the secondaries have a more continuous dark border, which is not broken

* We have specimens from Dr. Staudinger named *Nerula nautes* which agree with the types of *Hesperia fibrena*, Hew., in the British Museum. The latter specific name, given in 1877, has several years' priority, and the species must stand as *Nerula fibrena* (Hew.). If the name *Cogia* is rejected for the reason already stated (*antè*, p. 338), and *Nerula* prove to be congeneric, the latter name may be used instead of the former for this genus.

up into spots as in all the specimens before us. The large spot near the anal angle is shown, and we have no doubt that our specimens may properly be referred to *Spioniades artemides*.

The range of this species extends chiefly over the eastern and northern portions of South America; we trace it to Venezuela, and even to the Isthmus of Panama, where it comes into close contact with the allied *S. abbreviata*.

We figure a male from Chiriqui.

The male genitalia have two long curved rods, one on either side of the central hook of the tegumen; the harpes are symmetrical, cleft at the end into two thickened lobes which slightly overlap each other, the lower one being truncate, the upper rounded. (See Tab. LXXXII. fig. 30.)

2. *Spioniades abbreviata*.

Nerula abbreviata, Mab. Le Nat. x. p. 255 (1888)¹.

S. artemidi persimilis, sed alis anticis magis abbreviatis, latioribus, margine externo magis rotundato, maculis hyalinis majoribus, et macula fusca posticarum apud angulum analem a margine magis remota.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Trötsch*, in *mus. Staudinger*¹).—COLOMBIA; BOLIVIA.

This insect is very closely allied to *Spioniades artemides*, but may be recognized by the slight characters given above. It was described by M. Mabilie from a specimen in Dr. Staudinger's collection kindly lent us by its owner, and now before us. With it our series from Nicaragua southwards to Bolivia agrees very closely; but a single male specimen from the line of the Panama Railway belongs to the more eastern form, *S. artemides*.

ERACON, gen. nov.

Arteurotia biternata, Mabilie, differs materially from the type of *Arteurotia*, and not agreeing with any of the described genera we are obliged to assign it to a distinct genus, though we do so with some diffidence, as our materials are not sufficient to enable us to make a full examination of its characters by dissections.

In shape of wings and in general coloration *Eracon biternata* resembles *Pellicia bromias* (Mab.) (also placed in *Arteurotia* by that author), but the secondaries are rather more elongated and the primaries more rounded at the apex; moreover, there is no tuft of hairs near the base of the costal margin of the secondaries. The primaries have a conspicuous black spot with two white dots in the cell, recalling some members of the genus *Cyclosæmia*, in which, on the other hand, the secondaries are much less produced.

The antennæ and palpi resemble those of *Pellicia bromias*, but the hind tibiæ are furnished with a tuft of hairs as in *Spioniades*. There is no costal fold to the primaries.

We have specimens of several unnamed species in our collection, apparently congeneric with *Eracon biternata*. *Arteurotia bufonia*, Möschler, of which we have recently examined the type, also belongs to the same genus.

1. **Eracon biternata.** (Tab. LXXXIII. figg. 1, 2 ♂.)

Arteurotia biternata, Mab. Le Nat. xi. p. 217, f. 4 (1889)¹.

Alis brunneis, fasciis tribus communibus margini externo plus minusve parallelis obscurioribus; anticis punctis tribus subapicalibus triangulum formantibus et tribus ad medium costæ linea recta positis (duobus in cellula in macula nigra sitis), omnibus semihyalinis: subtus magis ferrugineis, fasciis indistinctis, punctis hyalinis ut in pagina superiore: palpis segmento apicali fusco, reliquis subtus et corpore infra albidis.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*¹).

Dr. Staudinger has lent us the type of this species, which was taken in Chiriqui by Ribbe and described by M. Mabille in 1889¹. It is the only specimen we have seen, and from it our figure is taken.

GORGOPAS, gen. nov.

This genus is proposed for a small group of species having the antennæ and the general shape of the wings like the members of *Pellicia*, but in which the males have a distinct costal fold and no tuft of hairs near the base of the costal margin of the secondaries. There is no tibial tuft on the hind legs, nor are the tibial spines fringed. The upper portion of the head and prothorax is usually bright metallic green, and in some cases, as in *G. chlorocephala* (Latr.), the same colour spreads over the bases of the wings. *Telemiades hybridus*, Mabille, also belongs to this genus. The harpes of the male genitalia are symmetrical.

1. **Gorgopas viridiceps.** (Tab. LXXXIII. figg. 3, 4, 5 ♂.)

Achlyodes viridiceps, Butler & Druce, Cist. Ent. i. p. 115 (1872)¹; P. Z. S. 1874, p. 370².

Alis nigricanti-brunneis fere unicoloribus; anticis ad apicem vix pallidioribus, punctis tribus in linea recta positis subapicalibus semihyalinis: subtus pallidioribus, posticis ad angulum analem pallide brunneis, fasciis tribus indistinctis margine externo subparallelis notatis: palpis supra, capite inter oculos, prothorace supra, et tegulis nitide aureo-viridibus, palpis infra griseis.

♀ mari similis, sed alis pallidioribus dimidio distali pallide brunneo, fasciis indistinctis obscurioribus notatis: subtus posticis ad angulum analem pallidis, fasciis indistinctis notatis.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*^{1 2}).—COLOMBIA; VENEZUELA; AMAZONS; E. PERU.

This species, of which we have the type from Costa Rica before us, is closely allied to *Hesperia chlorocephala*, Latr., which we now refer to this genus, but differs constantly in the darker colour of the wings and the absence of the shining green colour which overspreads the base of the wings of the latter species. The ranges of the two are to some extent coincident, but *G. chlorocephala* has not been detected within our limits.

The green head, well developed costal fold, and the absence of a tuft of hairs on the secondaries, near the base of the costa, at once distinguish these insects from *Pellicia*, to some species of which genus they otherwise have a considerable resemblance.

The male genitalia have a simple slender tegumen ending in a straight rod; the scaphium is not apparent; the harpes are wide, ending in two lobes, with a narrow cleft between them, at the base of which is a smaller rounded dependent lobe. (See Tab. LXXXIII. fig. 5.)

- b'. Secondaries of the male with a tuft of hair near the base of the costal margin; subcostal nervure of the secondaries and its branch more or less swollen near their junction.

PELLICIA.

Pellicia, Herr.-Schäffer, Corr.-Blatt Regensb. 1870, p. 159; Plötz, Berl. ent. Zeitschr. xxvi. p. 253 (1882); Wats. P. Z. S. 1893, p. 56.

We restrict this genus to the species in which the males have a very distinct tuft of long hairs arising between the costal nervure and the costal margin of the secondaries; the subcostal branch of the same wings is usually swollen near to where it parts from the subcostal, and the subcostal itself is swollen near the same angle. The only other genera that have these characters are *Mycteris* and *Hemipteris*, the former differing in having more prominent porrect palpi, the latter in its peculiarly small secondaries.

The obscure markings of most of the species of *Pellicia* makes them very difficult of recognition, and their determination from descriptions an almost hopeless task. We have availed ourselves, as far as possible, of facilities of comparing our series with named specimens in Dr. Staudinger's collection and in the British Museum. We have also a few from Herr Semper which have been named from Plötz's drawings. All these names we have used, but there remain several undetermined species in our collection some of which we have been obliged to name, though there are several briefly and insufficiently described species in various works which we are unable to recognize.

In *Pellicia* there is no costal fold to the primaries nor any sexual patch on the secondaries as in *Arteurotia*. The primaries are rather pointed, the outer margin convex; the discocellulars are nearly transverse, the lower being slightly shorter than the middle; the third median segment is short, the second long and slightly arched; the discocellulars of the secondaries are very feeble, and the radial only just traceable; the third median segment very short, the second subcostal segment shorter than the second submedian segment. The hind tibiae have two pairs of spurs and a dorsal crest, but no tufts from the proximal end.

The male genitalia, which are described in detail below, and differ much in each

species, furnish the best characters for dividing the species. Nearly all are asymmetrical as to their harpes, and even the tegumen in one case seems to have asymmetrical accessories.

The species of *Pellicia* are widely diffused over the greater part of Tropical America. In our country we find nine species, some of which appear to be peculiar to it, whilst others, such as *P. polyctor*, spread from Southern Mexico to South Brazil.

The following key gives some aid towards the discrimination of the members of the first section of the genus, all of which have a very great outward similarity to one another :—

- a.* Apex of the primaries with small diaphanous spots.
 - a'.* Submarginal and transcellular bands of the primaries independent.
 - a''.* Tuft on the secondaries long *tiphys.*
 - b''.* Tuft on the secondaries short.
 - a'''.* Spots of the discal band of the secondaries beneath uniform . . . *macareus.*
 - b'''.* Spots of the discal band of the secondaries beneath with pale centres *nyctimene.*
 - b'.* Submarginal and transcellular bands of the primaries united below the cell *bromias.*
- b.* Apex of the primaries without diaphanous spots.
 - c'.* Terminal joint of the palpi comparatively long.
 - c''.* Anal angle of the secondaries beneath not white.
 - c'''.* Costal portion of the primaries above and both wings beneath glossed with purple *costimacula.*
 - d'''.* No purple gloss on the wings *didia.*
 - d''.* Anal angle of the secondaries beneath more or less white *meno.*
 - d'.* Terminal joint of the palpi comparatively short *thyestes.*

A. General colour of the wings dark brown, with indistinct darker markings.

a. Apex of the primaries with small diaphanous spots.

1. ***Pellicia tiphys***, sp. n. (Tab. LXXXIII. figg. 6, 7, 8 ♂, 9, 10 ♀.)

Saturate brunnea, fasciis tribus communibus saturatioribus vix obviis, mediana anticarum abbreviata fasciam discalem haud concurrente: subtus pallidioribus, anticis fere unicoloribus; posticis dimidio distali dilutiore, fasciis tribus interruptis marginem internum haud attingentibus notatis.

♀ anticis apice magis abbreviato; posticis magis rotundatis, pallidioribus, fasciis omnibus magis obviis: subtus quoque dilutioribus, fasciis posticarum distinctis.

Hab. MEXICO, Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Cordova (*Rümel*), Atoyac (*H. H. Smith, Schumann*), Venta de Zopilote in Guerrero (*H. H. S.*), Oaxaca (*Fenechio*), Teapa in Tabasco (*H. H. S.*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Zapote, Dueñas, San Gerónimo, Panima (*Champion*), Central Valleys, Polochic Valley

(*F. D. G. & O. S.*); COSTA RICA, Irazu, Caché (*Rogers*); PANAMA, Bugaba (*Champion*), Lion Hill (*M^cLeannan*).—COLOMBIA; GUIANA.

This is one of the commonest species of *Pellicia* in Mexico and Central America, especially so in the Mexican State of Vera Cruz, where it occurs from near the sea-level to a height of 3000 or 4000 feet in the mountains. In Guatemala it occurs as high as 5000 feet near Dueñas, but is more abundant in the lower forest country on either side of the main mountain chain. The male genitalia have a simple, rather elongated, slightly depressed tegumen; below it on either side is a curved structure with a distinctly chitonized slightly serrate edge, below which, again, are two small serrate projections, possibly the scaphium: the harpes are not symmetrical; they both have a rounded simple upper lobe, but that on the right side has a more slender edge, that on the left side is more strongly serrate and curves round on its lower edge into a kind of subsidiary lobe also strongly serrate; the lower portion of each harpe is produced forwards into a point and serrate along the upper edge, that on the right side is only slightly upturned, that on the left much more curved and not so sharp. (See Tab. LXXXIII. fig. 8.)

The species to which *P. tiphys* is most nearly allied is *P. bessus*, Möschl. (Verh. z.-b. Ges. Wien, 1876, p. 341, t. 4. f. 25), the type of which has been kindly lent us by Dr. Staudinger. This is a rather darker form with more rounded secondaries, and with differences in the male genitalia, the upper lobe of the left harpe being quite simple at the base of the fissure, instead of much thickened; the lower lobe, too, is shorter and straighter.

2. *Pellicia macareus*. (Tab. LXXXIII. fig. 11, ♂.)

Pellicia macareus, Herr.-Schäff. Corr.-Blatt Regensb. 1870, p. 160¹; Plötz, Berl. ent. Zeitschr. xxvi. p. 254 (1882)².

P. tiphys persimilis, alis magis rotundatis, posticis minus elongatis et penicillo brevioribus distinguendus.

Hab. MEXICO, Atoyac (*Schumann*), Teapa (*H. H. Smith*); GUATEMALA, Choctum (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Champion*), Panama (*Ribbe, in mus. Staudinger*).—VENEZUELA; AMAZONS VALLEY.

We have a Venezuelan specimen from Herr Semper, named by him *P. macareus*, with a reference to Plötz's drawing, no. 191. It is a female, but apparently belongs to the same species as a series of examples from Mexico and Central America in our possession.

The range of *P. macareus*, as thus determined, extends to the lowlands of the Mexican State of Vera Cruz, where it occurs with *P. tiphys* at Atoyac, but not in such profusion. Both species also occur together at Teapa in the State of Tabasco.

The male genitalia present several differences from those of *P. tiphys*, which will be best understood by comparing the figures. (See Tab. LXXXIII. fig. 11.)

3. *Pellicia nyctineme*. (Tab. LXXXIII. fig. 12 ♂.)

Achlyodes nyctineme, Butl. Trans. Ent. Soc. 1877, p. 155¹.

Pellicia nyctineme, Wats. P. Z. S. 1893, p. 56².

Præcedenti similis, sed fasciæ discalis posticarum subtus maculis omnibus interne pallidis distinguenda.

Hab. NICARAGUA, Chontales (*Belt*).—COLOMBIA; AMAZONS VALLEY¹.

We have two specimens, male and female, from Nicaragua, and two males from Colombia, which agree fairly with Mr. Butler's type of this species.

P. nyctineme is a close ally of *P. macareus*, but seems to be distinguishable externally by the slight difference indicated above. The male genitalia are very distinct from those of *P. macareus* and *P. tiphys*, as an examination of the figures will show. (See Tab. LXXXIII. fig. 12.)

4. *Pellicia bromias*. (Tab. LXXXIII. figg. 13, 14 ♂, 15 ♀.)

Arteurotia bromias, Mab. in litt.

Alis anticis fascia discali et fascia per cellulam infra eam concurrentibus, omnibus magis obviis; posticis margine externo ad angulum analem sinuato, angulo ipso paulo producto.

Hab. MEXICO, Acapulco, Chilpancingo, Dos Arroyos, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Dueñas (*F. D. G. & O. S.*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Ribbe*).

This species may be recognized without much difficulty from the other Central-American members of *Pellicia* by the arrangement of the dark bands on the primaries, the two outer ones being confluent below the cell.

It is a common species in Southern Mexico, spreading into the Pacific coast region of Guatemala.

We have experienced some difficulty with the dissections of the male genitalia of this species, as in the five specimens we have examined they are not so much alike as is usually the case with these organs. There are no tangible external characters justifying any separation of our series into two or more species; and as the male genitalia examined tend to show that the more diverse forms are connected by intermediate ones, we are driven to the conclusion that these parts in this particular species are more variable than usual. (See Tab. LXXXIII. fig. 14.)

b. Apex of the primaries without diaphanous spots.

5. *Pellicia costimacula*. (Tab. LXXXIII. figg. 16, 17, 18 ♂.)

Pellicia costimacula, Herr.-Schäff. Corr.-Blatt Regensb. 1870, p. 160¹; Plötz, Berl. ent. Zeitschr. xxvi. p. 255 (1882)².

Alis saturate brunneis; anticis costa, basi et fasciis tribus transversis pallidioribus et purpureo tinctis, prima et secunda a basi infra cellulam confluentibus, tertia submarginali; posticis fasciis duabus maculosis valde

indistinctis, quoque purpureo tinctis notatis: subtus omnino purpureo suffusis, anticis minus, posticis magis distincte fasciatis; palpis fuscis, griseo vix atomatis.

♀ alis omnino fuscescentioribus, anticis magis abbreviatis: subtus præcipue ad angulum posticarum analem pallidioribus.

Hab. MEXICO, La Venta, Tierra Colorada, Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Chiacam, Toco, Panima, Zapote (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Ribbe*).—VENEZUELA²; PERU; AMAZONS VALLEY; BRAZIL².

Dr. Staudinger has sent us specimens from Chiriqui under this name, having doubtless compared them with the type.

The marking of the primaries in this species renders it readily distinguishable from the other members of the genus found in Central America. The palpi are rather longer than usual, showing that *P. costimacula* approaches the genus *Mycteris* in this respect. The subcostal nervure of the secondaries and its branch are much swollen near their junction, the upper discocellular meeting the subcostal just beyond the swollen part.

The range of this species is very extensive and probably includes nearly the whole of Tropical America. Our specimens are from various points of Southern Mexico, and thence southwards to the Brazilian Provinces of Rio Grande and Matto Grosso. Its range in altitude extends from the sea-level to a height of 2000 to 3000 feet.

The male genitalia are more complex as to the harpes than those of most of the other species of the genus *Pellicia*; they are not quite symmetrical, but their outlines can best be understood by reference to the figures. (See Tab. LXXXIII. fig. 18.)

6. *Pellicia didia*. (Tab. LXXXIII. figg. 19, 20, 21 ♂, 22, 23 ♀.)

Pellicia didia, Möschl. Verh. z.-b. Ges. Wien, 1876, p. 340, t. 4. f. 28¹; Plötz, Berl. ent. Zeitschr. 1882, p. 254².

Pellicia bilinea, Mab. Le Nat. xi. p. 216, f. 3 (1889)³.

P. costimaculæ affinis, sed minor, alis nullo modo purpureo suffusis.

Hab. MEXICO, Orizaba (*H. J. Elwes*), Cordova (*Rümeli*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Choctum, Polochic Valley (*F. D. G. & O. S.*), Panima, Zapote (*Champion*); HONDURAS (*Wittkugel*, *mus. Staudinger*); COSTA RICA, Irazu, Caché (*Rogers*), Chiriqui (*Ribbe*, *in mus. Staudinger*³).—GUIANA^{1 2}.

Dr. Staudinger has most kindly lent us the type of *P. didia*, Möschl., from Surinam, and a specimen of *P. bilinea* from Chiriqui, named from M. Mabilles' type. These types are of opposite sexes, but we see no grounds for believing them to be otherwise than of one species; our series from various places extending from Southern Mexico to Guiana confirms this view.

P. didia can easily be distinguished from the other species of *Pellicia* occurring

within our limits. Belonging to the section of the genus in which the subapical spots of the primaries are absent, it differs from *P. costimacula* in the absence of the purple gloss on the wings, from *P. meno* in the absence of white at the anal angle of the secondaries beneath, and from *P. thyestes* in its more produced secondaries.

The harpes of the male genitalia are, as in other members of the genus, unsymmetrical; the right harpe has the lower portion rather abruptly curved towards the end so as to overlap the upper terminal lobe. (See Tab. LXXXIII. fig. 21.)

7. ***Pellicia meno*.** (Tab. LXXXIII. figg. 24, 25 ♂.)

Arteurotia meno, Mab. Le Nat. xi. p. 239 (1889)¹.

Præcedenti similis, sed alis posticis magis elongatis, subtus triente distali albis, macula magna fusca ad angulum analem, maculis duabus albis discalibus quoque notatis; anticis margine interno subtus albicante; palpis infra griseo-albidis.

Hab. PANAMA, Line of Railway (*Ribbe, in mus. Staudinger*¹).

We have only seen the type of this species, lent us by Dr. Staudinger. It clearly belongs to *Pellicia*, having the characteristic tuft and swollen nervures of the other members of that genus.

8. ***Pellicia thyestes*, sp. n.** (Tab. LXXXIII. figg. 26, 27 ♂.)

Alis abbreviatis, posticis ad angulum analem haud productis, saturate brunneo-nigris, fasciis valde indistinctis obscurioribus notatis: subtus pallidioribus, fasciis omnibus magis obviis; palpis omnino fuscis.

♀ mari similis, fasciis alarum supra magis obviis.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*), Taboga I. (*Mathew*).

This species can be readily distinguished from the rest of this section by the shape of the wings, the primaries being comparatively short and the secondaries rounded, the anal angle not produced as in all the others. The structure of the male genitalia also shows that *P. thyestes* is a very distinct species.

Its range extends from the hotter portions of the Mexican State of Vera Cruz throughout Central America to Panama, where Mr. Gervase Mathew captured a specimen on the Island of Taboga in the Bay of Panama. We have not yet met with specimens from the mainland of South America.

The male genitalia, as already stated, are highly peculiar. So far as we can discover from two specimens examined, not only are the harpes unsymmetrical, but the tegumen itself is so also, being furnished on one side only with a long, slightly upcurved rod covered with strong acute papillæ; the lower portion of the left harpe is branched at the end, that of the right harpe being entire. (See Tab. LXXXIII. fig. 27.)

B. General colour of the wings brown, largely interrupted with white.

9. ***Pellicia polyctor***. (Tab. LXXXIII. figg. 28, 29, 30 ♂.)

*Pirgus polyctor**, Prittw. Stett. ent. Zeit. 1868, p. 186, t. 3. ff. 3 a, b¹.

Ephyriades polyctor, Plötz, Jahrb. Nass. Ver. xxxvii. p. 4 (1884)².

Helias ithrana, Butl. Trans. Ent. Soc. 1870, p. 519³.

Pellicia ithrana, Wats. P. Z. S. 1893, p. 56⁴.

Alis anticis fuscis, fascia mediana alba per cellulam bisectis, parte apicali indistincte squamis pallidis notata, maculis tribus subapicalibus et duabus discalibus (una ramo mediano, secundo utrinque) semihyalinis; posticis albis ad basin fuscis, margine externo angulo anali proximo pallide fusco, lunulis albidis notato: subtus usque ad basin albis, parte apicali anticarum et regione anali posticarum tantum fuscis: capite inter oculos fusco albo maculato; palpis subtus (segmento terminali nigro excepto), corpore toto et pedibus infra albis.

♀ mari similis.

Hab. MEXICO, Acapulco (*H. H. Smith*), Jalisco (*Schumann*), Atoyac (*H. H. Smith*, *Schumann*), Cordova (*Rümeli*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*); NICARAGUA, Chontales (*Belt*); PANAMA, David (*Champion*). — SOUTH AMERICA, from Colombia to South Brazil^{1 3}.

Though this species differs widely in general appearance from the other members of the genus *Pellicia*, there can be no doubt that Mr. Watson was right in placing it here⁴. In the form of the antennæ and the outline of the wings it agrees with the more normal species, and the presence of the characteristic tuft on the secondaries as well as the swollen nervures of those wings are conclusive as to its position.

P. polyctor was described from Brazilian specimens by Prittwitz in 1868, and two years afterwards received a second name from Mr. Butler, one of whose types is now before us. The identity of the two species was recognized by Plötz in 1882².

The range of the species is very extensive. It is found in the Mexican State of Vera Cruz and in Western Mexico, and thence spreads southwards to Southern Brazil, specimens from the extreme points of this wide area presenting no tangible points of difference. Its range in altitude reaches from the sea-level to a height of about 3000 feet in the mountains.

The male genitalia resemble those of the other members of *Pellicia* in having the harpes unsymmetrical and cleft at the end; the upper lobe of the right harpe is divided again into two thickened lobes, that of the left lobe being simply rounded. (See Tab. LXXXIII. fig. 30.)

MYCTERIS.

Mycteris, Mabilie, Pet. Nouv. Ent. ii. p. 114 (1877); Wats. P. Z. S. 1893, p. 56.

This genus is very close to *Pellicia*, and has a tuft of hairs on the secondaries and the subcostal and its branch swollen near their junction as in that genus. The palpi

* *P. polyctor* in Repertorium, 1863-1870.

have a long porrect terminal joint, and the first segment of the subcostal nervure of the secondaries is shorter in proportion to the second segment than is the case in *Pellicia*.

On the whole the two genera seem fairly distinct, though *Pellicia costimacula* is somewhat intermediate between the two.

Mr. Watson recognizes two named species of *Mycteris*, of which *M. cærulea* is the type of the genus, the other being *Arteurotia cambyses*, Hewitson.

1. ***Mycteris cærulea*.** (Tab. LXXXIII. figg. 31, 32, 33 ♂.)

Mycteris cærulea, Mab. Pet. Nouv. Ent. ii. p. 114 (1877)¹; Wats. P. Z. S. 1893, p. 56².

Alis fusco-nigricantibus fere unicoloribus, posticis ad marginem costalem vix pallidioribus: subtus pallidioribus; anticis ad marginem internum lilacino-griseis; posticis dimidio distali viridi-cæruleo; palpis et abdomine subtus fuscis.

♀ mari similis, alis supra indistincte fasciatis: subtus pallidioribus, colore cæruleo posticarum magis obscuro.

Hab. GUATEMALA, Polochic Valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Janson*).—COLOMBIA¹.

M. Mabilie described this distinct species from a specimen from Colombia, whence we also have a male example agreeing with another taken by ourselves in Guatemala. Our only female is from Nicaragua; but this appears to have traces of bands on the wings, but from its poor condition they cannot be traced satisfactorily.

The male genitalia, like those of *Pellicia*, have unsymmetrical cleft harpes; both portions have serrate ends: the lower lobe of the right harpe is upturned and overlaps the upper lobe, which has a large terminal patch of strong papillæ; the lower lobe of the left harpe also overlaps the upper lobe, which, however, is much simpler and narrower. (See Tab. LXXXIII. fig. 33.)

- b.* Antennæ with a long terminal slender end, this portion being as long as the slightly swollen club and in an even curve with it (except in *Antigonus*).

NISONIADES (?).

Nisoniades, Hübner, Verz. bek. Schmett. p. 108 (1816)?; Wats. P. Z. S. 1893, p. 51.

Papilio bromius, Stoll, is the type of this genus of Hübner. Mr. Watson drew his characters from specimens in the British Museum identified as belonging to Stoll's species. We have two similar specimens before us, but we doubt the correctness of the names of the Museum examples. Stoll's figure omits the characteristic black spot with its two white dots at the end of the cell of the primaries. It follows that though we know Mr. Watson's genus *Nisoniades* we cannot be certain that it is Hübner's, based upon Stoll's *P. bromius*.

The single species of this form we find in Central America (which we describe below as *N. pelarge*) is strictly congeneric with "*N. bromius*, Stoll," according to Mr. Watson; and wherever that insect is placed hereafter, *N. pelarge* must go with it.

The antennæ have a moderate club, gradually curved to a point. The palpi have a short porrect terminal joint. The primaries have no costal fold; the inner margin is longer than the outer margin, these wings being thus rather narrow; the cell is moderately long and rather narrow, the first median segment short, the third less than half the second; the lower discocellular is longer than the middle, the upper short but evident; the second and third subcostal segments are subequal; the third median segment of the secondaries is short, the lower discocellular longer than the upper, the radial being distinct. The hind tibiæ have a distinct dorsal fringe, but no tufts.

1. **Nisoniades(?) pelarge**, sp. n. (Tab. LXXXIV. figg. 1, 2, 3 ♂.)

Alis fuscis, anticis margine externo et fascia discali saturatoribus, macula ad cellulæ finem nigra punctis duobus albis inclusis, punctis alteris tribus subapicalibus triangulum formantibus quarto discali albis; posticis margine externo et fasciis duabus indistinctis obscuris, una discali, altera per cellulam: subtus pallidioribus, anticis fere ut supra; posticis bitriente interna glauco albido ad costam et ad marginem externum indistincte fusco notata; palpis infra fulvis nigro intermixtis, antennis nigris.

♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*).

N. bromius (apud Watson) is perhaps the species most nearly allied to that now described, but the latter may readily be distinguished by the glaucous colour of the inner third of the secondaries, the costa of which alone is dusky.

We have several specimens of both sexes from Belt's collection, but no others from an authentic source.

The tegumen of the male genitalia is short and blunt and cleft at the end; the scaphium is well developed, curved upwards, and projecting as far as the end of the tegumen; the harpes are deeply cleft at the end, the lower portion wide and expanding at the outer margin, the upper portion nearly uniform in width, slightly turned upwards and rounded at the end (see Tab. LXXXIV. fig. 3). These organs are exactly like those of *N. bromius*.

CYCLOSÆMIA.

Cyclosæmia, Mabille, Pet. Nouv. Ent. ii. p. 222 (1877); Wats. P. Z. S. 1893, p. 52.

Cyclosæmia is very closely allied to Mr. Watson's *Nisoniades*, and perhaps not really separable. The primaries are rather wider and the third median segment shorter, the secondaries more rounded; the terminal joint of the palpi rather longer. There also

appear to be differences in the male genitalia—not, however, available for generic definition.

Two species occur within our limits, one of which has a wide South-American range; the other is only known to us from a single specimen from Chiriqui.

1. *Cyclosæmia anastomosis*. (Tab. LXXXIV. figg. 4, 5, 6 ♂.)

Cyclosæmia anastomosis, Mab. Pet. Nouv. Ent. ii. p. 230 (15 May, 1878).

Leuchochitonia lyræa, Hew. Ent. Monthly Mag. xv. p. 151 (Dec. 1878).

Alis brunneis, fasciis duabus communibus saturatioribus, una submarginali, altera discali; anticis macula rotunda nigra ad cellulæ finem fulvo circumcincta et punctis duobus glaucis inclusis; posticis fascia altera obscura per cellulam: subtus omnino pallidioribus, fasciis obscuris angustioribus, in posticis maculosis; posticis ad marginem internum glaucis; palpis subtus albidis fusco intermixtis, antennis fuscis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Zapote, Chiacam (*Champion*), Polochic Valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch, in mus. Staudinger*), Veraguas (*Arcé*).—AMAZONS VALLEY; BRAZIL.

M. Mabilles's description of *Cyclosæmia anastomosis* has a few months' priority over Hewitson's posthumous description of *L. lyræa*. The type of the latter, the origin of which is not recorded, agrees closely with a specimen of the former from Chiriqui named by M. Mabilles.

C. anastomosis has a wide range, extending from the lowlands of the Mexican State of Vera Cruz through the whole of Central America to the Amazons Valley and Brazil. In the glaucous colour of the inner margin of the secondaries beneath it agrees with *Nisoniades pelarge*.

The tegumen of the male genitalia terminates in a short blunt hook: the harpes end in two rods bent towards each other like the arms of a pair of forceps; the lower rod is the longer and more curved. (See Tab. LXXXIV. fig. 6.)

2. *Cyclosæmia phidyle*, sp. n. (Tab. LXXXIV. figg. 7, 8 ♀.)

Alis brunneis, anticis medialiter pallidioribus, fascia discali ad costam evanescente fusco-brunnea, macula rotunda nigra ad cellulæ finem, punctis tribus subapicalibus in linea recta semihyalinis nigro circumcinctis; posticis margine externo et fasciis duabus transversis fuscis, una discali, altera per cellulam: subtus saturate brunneis; anticis dimidio apicali pallide fulvis, punctis semihyalinis ut supra sed macula cellulari nigra nulla; palpis brunneis, antennis nigricantibus.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

The single specimen of this well-marked species which we possess is apparently a female, and was taken by Mr. Champion on the slopes of the Volcano of Chiriqui at an elevation of about 5000 feet above the sea.

ANASTRUS.

Anastrus, Hübner, Samml. ex. Schm. ii. t. 149 (1822-26); Wats. P. Z. S. 1893, p. 54.

There are several groups of species all more or less allied to *Anastrus*, but as they can be defined with considerable accuracy we think it best to treat each of them as genera and to restrict *Anastrus* to *A. obscurus*, its type species, and a few others. Only one of these, *A. næris* (Möschl.), occurs within our limits, and this is strictly congeneric with *A. obscurus*.

The antennæ in *Anastrus* have a long, rather slender, gradually thickened club, evenly curved, and reduced to an acute end. Palpi with the terminal joint short, blunt, porrect. Primaries with a slight costal fold; the inner margin longer than the outer, the apex slightly produced; the outer margin convex; the cell long and rather narrow; the second median segment long and curved; the third segment very short, about equal to the lower and middle discocellulars.

The secondaries have the anal angle slightly produced, the discocellulars and radial very slender; the third median segment very short. Hind tibiæ with two pairs of spurs and a long tuft from the proximal end.

The range of this genus extends from Western Mexico to South-eastern Brazil.

1. ***Anastrus næris***. (Tab. LXXXIV. figg. 9, 10, 11 ♂, 12 ♀.)

Achlyodes næris, Möschl. Verh. z.-b. Ges. Wien, 1878, p. 226¹.

Antigonus næris, Plötz, Jahrb. Nass. Ver. xxxvii. p. 24 (1884)².

Achlyodes obscurus, Butl. & Druce, P. Z. S. 1874, p. 370³.

Alis nigricanti-purpureis; anticis costa ad apicem et margine externo violaceo tinctis, squamis quibusdam fulvis sparsim atomatis; posticis ad marginem externum quoque late violaceis: subtus saturate brunneis, anticis fere immaculatis ad marginem externum vix pallidioribus; posticis dimidio anali glauco albican-
tibus; palpis griseis.

♀ mari similis, sed alis magis brunneis, anticis costa ad apicem et ad marginem externum pallidioribus; posticis dimidio distali pallidioribus, fascia discali valde indistincta notato.

Hab. MEXICO, Acapulco, Atoyac (*H. H. Smith*), Coatepec (*W. Schaus*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), El Tumbador (*Champion*), Volcan de Santa Maria (*Richardson*); HONDURAS (*Dyson*); COSTA RICA (*Van Patten*³), Santa Clara Valley (*Zurcher*), R. Sucio (*Rogers*).—COLOMBIA¹; VENEZUELA.

This species, which otherwise resembles *A. obscurus*, may at once be distinguished from that species by the bluish-white anal portion of the secondaries beneath, a character prominent in both sexes.

A. næris was described by Möschler in 1878 from specimens in his collection from Colombia. One of these has been lent us by Dr. Staudinger, and we are thus able to name our series from Central America with certainty. In Mexico it appears to be rare, though widely distributed, occurring both on the West Coast at Acapulco, at Atoyac in Vera Cruz, and in Northern Yucatan, from each of which places we have

a single specimen. In Guatemala it is also found on both sides of the mountain-range. We have also received several specimens from Costa Rica. It is a lowland species, found in hot country between the sea-level and about 2500 feet in the mountains.

The male genitalia have a short simple tegumen and well-developed scaphium. The harpes are elongated, cleft horizontally towards the end; the upper portion bears a short tooth, the lower is longer, rounded at the end, slightly serrate on the inner edge, and with a distinct spine near its base. (See Tab. LXXXIV. fig. 11.)

GORGOPHONE, gen. nov.

With the coloration and general appearance of *Anastrus obscurus* and other members of that genus, *Gorgophone* differs from *Anastrus* in wanting the costal fold in the male and also the tuft of hairs attached to the proximal end of the hind tibiæ in the same sex.

Besides the species described below, we have two other similar insects which are quite congeneric.

1. *Gorgophone melibœa*, sp. n. (Tab. LXXXIV. figg. 13, 14 ♂.)

nastro neæri quoad colores alarum persimilis, sed paulo rufescentior; alis posticis latioribus, magis rotundatis: pedibus posticis pincilla tibiali setosa nulla; plica alarum anticarum costali quoque absente.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Ribbe, in mus. Staudinger*).

We have two male specimens of this species, and Dr. Staudinger has another. The resemblance to *Anastrus neæris* is very close, and but for the structural differences we should hardly recognize them as distinct. The total absence of the costal fold to the primaries and the tibial tuft to the posterior legs at once reveal its difference. The anal area of the under surface of the secondaries is glaucous-white, just as in *A. neæris*.

ECHELATUS, gen. nov.

This is another small genus allied to *Anastrus*, differing from it in the absence in the male of the tufts to the hind tibiæ. In some species a costal fold is very apparent, but in others much less so. In *Anastrus* the fold is very small, and in *Gorgophone* absent altogether; moreover, the latter genus has the wings shaped as in *Anastrus*, whereas in *Echelatus* the primaries are less truncate and the secondaries comparatively smaller.

The range of the genus extends over the greater part of Tropical America from Southern Mexico to South Brazil.

a. Costal fold very distinct.

1. **Echelatus varius.** (Tab. LXXXIV. figg. 15, 16 ♂.)

Anastrus varius, Mab. Bull. Soc. Ent. Belg. 1883, p. liv¹.

Alis brunneis, marginibus externis saturatioribus; anticis fasciis duabus indistinctis, una irregulari per cellulam, altera basali: subtus pallidioribus, anticis fere unicoloribus, ad marginem internum pallidis; posticis dimidio anali glauco-cæruleis, fasciis tribus indistinctis fere ad costam extendentibus; palpis subtus griseis. Plica costali obvia.

Hab. MEXICO, Coatepec (*W. Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*); GUATEMALA, Zapote (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*), Lion Hill (*M. Leannan*).—COLOMBIA; VENEZUELA¹.

The type of *E. varius* came from Venezuela¹, and a specimen from Chiriqui named from it has been kindly lent us by Dr. Staudinger. The species now proves to have a wide range throughout the greater part of the hotter portions of our country, from the State of Vera Cruz to the Line of the Panama Railway. We have not seen any examples from from Western Mexico, but it occurs in the forest-districts of Guatemala bordered by the Pacific Ocean.

Two species in our country closely resemble *E. varius* in colour, viz. *E. luctuosus* (which follows) and *E. sempiternus*. From the former it differs in having the anal region of the secondaries beneath of a bluish-white colour, these wings being of a uniform brown in *E. luctuosus*. From the latter it differs in having less definite markings and in having a well-defined costal fold.

2. **Echelatus luctuosus.** (Tab. LXXXIV. figg. 17, 18 ♂.)

Achlyodes luctuosus, Staud.

E. vario similis, et supra alis omnino similibus: subtus posticis usque ad angulum analem brunneis unicoloribus nec glauco-cæruleis.

♀ mari similis, plica anticarum costali absente.

Hab. MEXICO, Acapulco (*H. H. Smith*).—SOUTH AMERICA, from Colombia to South Brazil.

We have a specimen from the Amazons Valley sent us under the above name, which we adopt, though unable to find the published description. Though closely allied to *E. varius*, the uniform colour of the secondaries beneath at once distinguishes the two forms.

The range of this species is somewhat peculiar. We have two male specimens from Acapulco in Western Mexico, on the shores of the Pacific, but no other trace of it in either Mexico or Central America. In Colombia and thence through nearly the whole of Tropical America it seems to be generally distributed.

The male genitalia have a tegumen which divides near the end into two divergent, curved, slightly raised points; from the base of each of these is another point, slightly

depressed, and further in a small lobe; the harpes are long, with an undulating ventral edge and a notch near the middle of the dorsal edge. (See Tab. LXXXIV. fig. 18.)

b. Costal fold very small.

3. *Echelatus sempiternus*. (Tab. LXXXIV. figg. 19, 20, 21 ♂.)

Achlyodes sempiternus, Butl. & Druce, Cist. Ent. i. p. 114¹; P. Z. S. 1874, p. 370².

Alis brunneis, anticis fasciis obscurioribus notatis duabus submarginalibus, una per cellulam et macula magna subquadrata cellulari, fasciam submarginalem internam conjuncta; posticis margine externa, fascia discali, et altera basali obscuris: subtus pallidioribus, fasciis omnibus ut supra anticis area interna pallida, posticis area anali glauco-cærulea; palpis subtus griseis, apice brunneis.

♀ mari similis.

Hab. MEXICO, Acapulco, Soledad, Rincon, Atoyac, Teapa (*H. H. Smith*), Jalapa, Coatepec (*W. Schaus*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Polochic Valley (*F. D. G. & O. S.*), Zapote, Panima (*Champion*); COSTA RICA (*Van Patten*^{1 2}), Caché, Irazu (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriquí (*Ribbe*), Veraguas (*Arcé*).—AMAZONS VALLEY.

The type of this species is a female in poor condition, which formed part of Van Patten's Costa Rica Collection¹. We have now many specimens of the species, which has a wide range, extending from Southern Mexico through the whole of Central America to Venezuela and the Amazons Valley.

In general appearance *E. sempiternus* is very like *E. varius*, but the dark bands of the wings, especially the primaries beneath, are much clearer; moreover, the costal fold, well developed in *E. varius*, is hardly seen in this species.

The tegumen of the male genitalia is similar to that of *E. varius* so far as regards the divergent terminal pair of points, but the other points are not apparent; the harpes are long and acute, the extremity curving slightly upwards. (See Tab. LXXXIV. fig. 21.)

4. *Echelatus eugramma*. (Tab. LXXXIV. figg. 22, 23 ♀.)

Anastrus eugramma, Mab. Le Nat. x. p. 221, f. 2 (1888)¹.

♀. Alis rufo-brunneis; anticis ad apicem obscurioribus, fasciis duabus nigricanti-brunneis, una bifracta per cellulam, altera ad basin, maculis variis obscuris ad apicem et ad marginem externum, punctis quatuor indistinctis semihyalinis, duobus approximatis ad costam, uno infra ea et quarto discali; posticis fasciis duabus et margine externo obscuris: subtus pallidioribus, maculis omnibus distinctis; posticis area anali nitide cærulea.

♂ adhuc ignotus.

Hab. PANAMA, Chiriquí¹ (*Trötsch*).

Of this species we have only seen the type, kindly lent us by Dr. Staudinger, and from which our figures are drawn. It is a female.

GRAIS, gen. nov.

Anastrus stigmaticus, Mab., is the type of this genus, which is distinguished from *Anastrus* by the long narrow cell of the primaries, the absence of costal fold and tibial tufts. The first median segment is short, the second long and arched, the third about half the length of the second; the lower and middle discocellulars are subequal, and placed rather obliquely to the axis of the wing; the upper discocellular is comparatively long, oblique, and equal to about half the middle discocellular; the third median segment of the secondaries is long, being about equal to half the second segment; the lower discocellular is longer than the upper, and both, as well as the radial, are very slender. The palpi have a very short terminal joint. The antennæ have a gradually swelling club, which then tapers to a point and is evenly curved throughout its length. The hind tibiæ have two pairs of long spurs, but no tuft at the proximal end.

The range of the genus is that of the single species described below.

1. *Grais stigmaticus*. (Tab. LXXXIV. figg. 24, 25, 26 ♂.)

Anastrus stigmaticus, Mab. Bull. Soc. Ent. Belg. 1883, p. liv¹.

Antigonus fumosus, Plötz, Jahrb. Nass. ent. Ver. xxxvii. p. 26 (1884)².

Alis brunneis, indistincte maculis obscurioribus notatis: subtus pallidioribus, quoque obscure maculatis; palpis et coxis anterioribus læte cervinis.

♀ mari similis.

Hab. MEXICO, Ciudad Victoria in Tamaulipas (*W. B. Richardson*), Coatepec (*Brooks*), Jalapa (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*); PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch*¹).—SOUTH AMERICA to South Brazil; JAMAICA.

A large dull-coloured species with very obscure markings, described by M. Mabilie from Chiriqui specimens, one of which is before us.

Its range northward extends to the extreme north-eastern limit of the Neotropical region in Mexico, and thence spreads southwards over the greater part of the region to South Brazil and to some of the West Indian Islands.

Antigonus fumosus, Plötz, is a synonym of this species, as we ascertain from a specimen kindly given us by Herr Semper, and named from Plötz's drawings.

The male genitalia differ considerably from those of the species of *Anastrus* and its allies; the tegumen has a dorsal prominence before the terminal portion and ends in a single blunt point; the harpes are rounded at the end, the upper corner is finely serrate and emits a recurrent spur, on the dorsal edge is a distinct prominence. (See Tab. LXXXIV. fig. 26.)

CELÆNORRHINUS.

Celænorrhinus, Hübner, Verz. bek. Schm. p. 106 (1816); Wats. P. Z. S. 1893, p. 49.

Narga, Mabilie, Bull. Soc. Ent. Belg. xxxv. p. lxx (1891).

The range of this genus extends over a large portion of the tropics of both Old and

New Worlds, different members of it being found in Southern Asia, the greater part of Africa, and nearly the whole of Tropical America. Fewer species, however, occur in the latter continent than in the Old World.

The type of the genus, *C. eligius*, is one of the most widely ranging species of America, and is found from Guatemala to Southern Brazil; two other species occur in Southern Mexico, and about four more in various parts of South America.

The antennæ are long and have a curved club gradually tapering to the end. Terminal joint of the palpi short, semi-erect. Primaries: inner margin slightly longer than the outer, the cell about two-thirds the length of the wing; discocellulars in an oblique line, the lower longer than the middle; the third median segment short, about one third the second segment. Secondaries: cell more than half the length of the wing; discocellulars slightly oblique, the lower longer than the upper; radial just visible; third median segment short, about one-third the second segment, which again equals the second subcostal segment. Hind tibiæ with two pairs of spurs, a dorsal crest, and the male with a long tuft from the proximal end.

The outer margin of the secondaries of the type is slightly angular, but this feature is not found in the other species of the genus.

Narga chiriquensis, the type of the genus *Narga*, Mabilie, is quite congeneric with *Celænorrhinus*.

1. *Celænorrhinus eligius*. (Tab. LXXXV. fig. 1 ♂.)

Papilio eligius, Cr. Pap. Ex. t. 354. f. H¹.

Celænorrhinus eligius, Hübn. Verz. bek. Schm. p. 106²; Wats. P. Z. S. 1893, p. 49³.

Plesioneura eligius, Butl. & Druce, P. Z. S. 1874, p. 370⁴.

Alis saturate brunneis; anticis fascia mediana semihyalina venis trisecta, punctis duobus infra eam, altera ultra eam inter venam medianam et ramum suum secundum, punctis tribus subapicalibus et uno (interdum duobus) infra ea, omnibus semihyalinis; posticis fere unicoloribus, maculis obsoletis pallidis indistincte notatis: subtus ut supra, sed alis pallidioribus; posticis maculis pallidis magis obviis; palpis supra alis concoloribus, subtus albis, segmento terminali nigro.

♀ mari similis, sed major, maculis posticarum pallidis magis obviis.

Hab. GUATEMALA, El Tumbador, Cerro Zunil and Panima (*Champion*), Polochic Valley (*F. D. G. & O. S.*); HONDURAS (*Wittkugel, in mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴), Caché (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA generally, from Colombia to Paragua and Argentina.

This well-known and common South-American species has a wide range in our country, reaching the forest-region of both coasts of Guatemala, but not extending to any part of Mexico.

So far as the continent of America is concerned *C. eligius* has no very near ally, but the Indian *C. chamunda*, Moore, much resembles it in markings, though differing in the shape and colour of the fringe of the secondaries.

The male genitalia have a tegumen divided into two divergent points at the end, these are depressed at the extremity; the harpes are split into two lobes, the lower one wide and rounded at the end, the upper one attenuated. (See Tab. LXXXV. fig. 1.)

2. **Celænorrhinus variegatus**, sp. n. (Tab. LXXXV. figg. 2, 3, 4 ♂.)

C. eligio affinis, sed posticis margine externo magis rotundato, minime angulato, maculis obsoletis pallidis nullis, sed pagina tota saturate fusco quasi variegata: palpis subtus medialiter fuscis, lateribus et oculorum ambitu postice albidis.

Hab. MEXICO, Dos Arroyos, Venta de Zopilote, Tierra Colorada in Guerrero (*H. H. Smith*), Jalapa, Coatepec (*W. Schaus*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*); NICARAGUA, Chontales (*Belt*).

Though much like *C. eligius* in general appearance this species may be readily distinguished by the more rounded, less angular, secondaries, the absence of obscure yellowish spots on the upperside of the same wings, and by the large dark spots spread over their whole surface, giving it a mottled appearance.

We have several specimens of *C. variegatus* collected by Mr. Herbert Smith in the State of Guerrero, and others from the slopes of the Volcano of Santa Maria in Guatemala, and also one from Belt's collection. The species, therefore, has a wide range, chiefly, but not wholly, in the country bordering the Pacific Ocean.

The male genitalia differ to some extent from those of *C. eligius*; the points of the tegumen are more contiguous and parallel, and the branches of the harpes more equal in size and bent towards each other like the arms of a pair of forceps. (See Tab. LXXXV. fig. 4.)

3. **Celænorrhinus chiriquensis**. (Tab. LXXXV. figg. 5, 6, 7 ♂.)

Narga chiriquensis, Mab. Bull. Soc. Ent. Belg. xxxv. p. lxx (1891)¹.

C. eligio quoque similis, sed anticis fascia mediana semihyalina nulla, maculis omnibus semihyalinis parvis, anticis dimidio apicali et posticis indistincte nigro variegatis; palpis subtus medialiter fuscis, lateribus et oculorum ambitu postice cervino-albidis.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe, in mus. Staudinger*¹), Veraguas (*Arcé*).

Dr. Staudinger has kindly lent us two specimens of this species from Chiriqui named by M. Mabilie¹ "*Narga chiriquensis*." They agree with our series, which includes examples from Eastern Mexico and several of the Central-American States, though none have reached us from Guatemala. They also agree structurally with *C. eligius*, the type of *Celænorrhinus*, so that *Narga* becomes a synonym of that genus.

Apparently rare in more northern districts, *C. chiriquensis* is quite common in the neighbourhood of Chiriqui, whence Mr. Champion has sent us many specimens, and where Herr Ribbe captured Dr. Staudinger's specimens.

The tegumen of the male genitalia is shorter than that of *C. eligius*, but is also cleft, the two branches diverging considerably; the scaphium is well developed and hangs low in the anal cavity; the harpes are divided into two short lobes with rounded ends, the lower wide, and the upper slender. (See Tab. LXXXV. fig. 7.)

MYLON, gen. nov.

Several groups of species follow here, more or less related to one another and with somewhat similar coloration. Hitherto most of them have been placed either in *Leucochitonea* or *Antigonus*, but this arrangement can be no longer followed.

Leucochitonea lassia of Hewitson may be taken as the type of the present genus, with which *L. pulcherius* seems to be strictly congeneric.

The primaries are considerably curved and rather truncate, the cell rather broad; the third median segment short, about equal to the lower and middle discocellulars, which are themselves subequal; the second median segment is long and slightly curved; the discocellulars of the secondaries are subequal and, as well as the radial, very feeble; the third median segment very short, the second subcostal segment about equal to the upper discocellular. The palpi end in a short porrect joint; the hind tibiæ have a distinct tuft of hairs from the proximal end, and two pairs of spurs.

The range of the genus extends over a large part of Tropical America, from Eastern Mexico to South Brazil.

1. *Mylon lassia*. (Tab. LXXXV. figg. 8, 9, 10 ♂.)

Leucochitonea lassia, Hew. Descr. Hesp. p. 49 (1868)¹.

Antigonus lassia, Plötz, Jahrb. Nass. ent. Ver. xxxvii. p. 28 (1884)².

Alis supra pallide fusco-albidis, ad basin multo obscurioribus, area submarginali quoque obscuriore, fasciis valde irregularibus notata, punctis quatuor subapicalibus, primo ad costam et tertio minoribus, secundo et quarto majoribus, ad apicem magis approximatis, linea subbasali nigricante irregulari, area mediana pallida squamis obscurioribus irregulariter notata; posticis medialiter albicantibus, basi et margine externo fuscescentibus, margine ipso obscuriore, lineola ad cellulæ finem et fascia discali maculosa pallide fuscis: subtus multo albicantioribus, margine externo et area apicali anticarum fuscescentibus; palpis infra albidis.

♀ mari similis.

Hab. MEXICO, Jalapa, Coatepec, Rinconada (*W. Schaus*), Atoyac (*H. H. Smith, Schumann*), Orizaba (*H. J. Elwes*), Cordova (*Rümeli*), Jalisco (*Schumann*); GUATEMALA, San Gerónimo (*Champion*), Northern Vera Paz, Izabal (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché, R. Sucio (*Rogers*); PANAMA, Chiriqui (*Ribbe, Arcé*), Bugaba (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA, from Colombia to Bolivia.

The origin of Hewitson's type of his *Leucochitonea lassia* was not recorded¹, but we now know that the species has a very wide range, commencing in the north in the Mexican States of Vera Cruz and Jalisco, and spreading thence over the whole of the hotter parts of Central America and the western regions of South America as far south as

Bolivia. It occurs in the basin of the Upper Amazons, where Bates found it at San Paulo; but we have not met with specimens from the lower portions of that great river-valley or from Guiana or Southern Brazil.

The general resemblance of *M. lassia* to *Eudamidas melander* is very great; but the subapical spots in the primaries of the former readily distinguish it. There are also large tufts to the hind tibiæ of the male, of which there are no trace in *E. melander*.

The male genitalia have a tegumen ending in four points arranged in two pairs (one on either side) and divergent; the scaphium is well developed and pointed, the terminal portion with a granular surface; the end of the harpes is very complex, and has serrate-edged rounded lobes, some of which are recurved. (See Tab. LXXXV. fig. 10.)

2. *Mylon pulcherius*. (Tab. LXXXV. figg. 11, 12, 13 ♂.)

Leucochitonea pulcherius, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 477¹.

Antigonus pulcherius, Plötz, Jahrb. nass. Ver. xxxvii. p. 29 (1884)².

M. lassia aliquot similis, sed major; anticis obscurioribus fasciis fuscis bene definitis, area anticarum mediana fuscescentiore; punctis subapicalibus in linea rectiore positis, secunda a costa maxima; posticis fascia discali haud interrupta: subtus triente basali multo obscuriore, anticis ad apicem et posticis ad marginem externum quoque obscurioribus.

♀ mari similis.

Hab. MEXICO², Rincon in Guerrero (*H. H. Smith*), Orizaba, Atoyac (*Hedemann*¹), Vera Cruz (*Sallé*¹); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*).—SOUTH AMERICA, from Colombia¹ and Venezuela^{1 2} to South Brazil.

This species was described by R. Felder¹ from Mexican specimens obtained by Hedemann at Orizaba and Atoyac in the State of Vera Cruz; he had also before him examples from the same State collected by Sallé, and others from Venezuela and Colombia.

We have only one Mexican specimen, which was taken by Mr. H. H. Smith at Rincon, in the Western State of Guerrero. Our other examples are from various parts of Central and South America, where, however, the species appears to be nowhere common.

Though similar in many respects to *M. lassia*, and, like that insect, with subapical hyaline spots in the primaries and tufts to the hind tibiæ in the male, *M. pulcherius* differs in being considerably darker, with the darker marks more defined and less irregular. The male genitalia at once show that the two species are quite distinct; the tegumen in *M. pulcherius* is four-pointed, but the points are not so divergent; the scaphium is more dense and smooth; the harpes less complex, with a rounded serrate end, this edge terminates inwardly with a strong tooth followed by a deep fissure and then a serrate lobe. (See Tab. LXXXV. fig. 13.)

EUDAMIDAS, gen. nov.

The members of this genus have a great general resemblance to those of *Mylon*, but may at once be distinguished by the absence of the tuft on the proximal end of the hind tibiæ of the male, and there are no subapical semihyaline spots on the primaries. In the shape and neuration of the wings the two are much alike.

The range of *Eudamidas*, like that of *Mylon*, extends over nearly the whole of Tropical America.

1. *Eudamidas melander*. (Tab. LXXXV. fig. 14 ♂.)

Papilio melander, Cr. Pap. Ex. t. 270. f. H¹.

Antigonus melander, Plötz, Jahrb. Nass. ent. Ver. xxxvii. p. 29 (1884)².

Alis griseo-albidis; anticis lineis transversis fuscis irregulariter fasciatis, area mediana pallidiore lineisque magis distinctis; posticis ad basin fuscis, margine externo late pallide fusco, maculis obscurioribus continente, fascia maculosa interiore quoque pallide fusca: subtus omnino pallidioribus, fasciis omnibus indistinctis; palpis subtus albis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Chiacam, San Gerónimo, Zapote (*Champion*), Polochic and Chisoy Valleys (*F. D. G. & O. S.*), Dueñas (*F. D. G. & O. S., Champion*); NICARAGUA, Matagalpa (*W. B. Richardson*), Chontales (*Belt*); COSTA RICA (*Van Patten, Carmiol*), Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé, Ribbe*), Bugaba (*Champion*).—SOUTH AMERICA, from Colombia to Guiana^{1 2} and Paraguay.

A common widely ranging species, reaching the middle of the State of Vera Cruz in its northern limit, and spreading thence over the whole of Tropical America to South Brazil and Paraguay. In general appearance it is very like *Mylon pulcherius*, but is rather paler, the dark markings showing more clearly. There are no subapical semihyaline spots on the primaries, nor any tufts to the hind tibiæ of the male.

The male genitalia have a tegumen ending in four points arranged in two pairs; the scaphium is well developed and pointed; the harpes elongated and ending in a narrow rounded lobe, on the upperside of which is a large dentate process, there is a deep fissure on the dorsal edge and a fold on the proximal side of it. (See Tab. LXXXV. fig. 14.)

2. *Eudamidas ozema*. (Tab. LXXXV. figg. 15, 16, 17 ♂.)

Achlyodes ozema, Butl. Trans. Ent. Soc. 1870, p. 515¹; Butl. & Druce, P. Z. S. 1874, p. 370².

Antigonus ozema, Plötz, Jahrb. Nass. ent. Ver. xxxvii. p. 28 (1884)³.

Alis margaritaceo-griseis; anticis medialiter pallidioribus, fasciis irregularibus interruptis fuculentibus notatis; posticis ad basin et ad marginem externum fuscis, fasciis duabus distinctis, una ad cellulæ finem abbreviata, altera discali, tertia diffusa submarginali: subtus omnino pallidioribus, fasciis omnibus fuscis evanescentibus; palpis subtus albis.

♀ mari similis.

Hab. MEXICO³, Jalisco (*Schumann*), Acapulco, Omilteme, Tierra Colorada, Dos

Arroyos, Rio Papagaio (*H. H. Smith*), Atoyac (*H. H. S., Schumann*), Cordova (*Rümeli*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Choctum, Polochic Valley (*F. D. G. & O. S.*), Chacoj (*Champion*); HONDURAS¹ (*Dyson*); NICARAGUA, Chontales (*Belt*¹); COSTA RICA (*Van Patten*²); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Panama (*Ribbe*).—SOUTH AMERICA, from Colombia to South Brazil.

E. ozema was described by Mr. Butler in 1870 from specimens in Mr. Druce's collection and in that of the British Museum, from various localities in Central and South America. We obtained examples, some years previously, in Guatemala, and it has since proved to be a very common insect, ranging from Southern Mexico to South Brazil.

The tegumen of the male genitalia has two short claw-like points at the end; the harpes are elongated, the lower portion being considerably narrowed and produced, at the base of the narrow portion a lobe arises, ending in a spatuled thickened end; a flattened prominence on the dorsal edge has a serrate margin. (See Tab. LXXXV. fig. 17.)

XENOPHANES, gen. nov.

The primary wings in this genus are much shorter and more rounded than in either of the preceding genera; the third median segment is short, the lower and middle discocellulars subequal, and the upper discocellular distinct; there is no fold along the costa; the discocellulars of the secondaries and the radial are very indistinct, the third median segment long and nearly equal to the second subcostal segment; the hind tibiæ have no tuft.

The type of the genus, *X. tryxus* (Cr.), has a very wide range throughout Tropical America.

1. *Xenophanes tryxus*. (Tab. LXXXV. fig. 18 ♂.)

Papilio tryxus, Cr. Pap. Ex. t. 334. ff. G, H¹.

Urbanus cautus tryxus, Hübn. Samml. ex. Schm. i. t. 157².

Pythonides tryxus, Butl. & Druce, P. Z. S. 1874, p. 369³.

Alis griseo-fuscis; anticis plaga magna mediana venis intersecta, marginibus suis valde undulatis, hyalina, maculis quatuor elongatis subapicalibus quoque hyalinis, punctis duobus infra eas ejusdem coloris; posticis quoque plaga magna hyalina sicut in alis anticis, fascia submarginali obscure fusca: subtus margaritaceo-albidis, plagis hyalinis sicut in pagina superiore; anticis ad apicem fuscis maculis irregularibus obscurioribus notatis; posticis fascia maculosa submarginali fusca, maculis ad angulum analem confluentibus.

♀ mari similis.

Hab. MEXICO, Acapulco, Acaguizotla, La Venta, Rincon (*H. H. Smith*), Jalapa, Misantla (*F. D. G.*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*), Atoyac (*H. H. Smith, Schumann*), Oaxaca (*Fenochio*), Teapa (*H. H. Smith*), Valladolid (*Gaumer*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA, Cahabon, Panzos, San Juan, Panima, Zapote (*Champion*), San Gerónimo (*F. D. G. & O. S., Champion*), Choctum, Polochic

Valley (*F. D. G. & O. S.*) ; HONDURAS (*Dyson*), San Pedro (*G. M. Whitely*) ; NICARAGUA, Chontales (*Belt*) ; COSTA RICA (*Van Patten*³), Irazu, Caché (*Rogers*) ; PANAMA, Chiriqui (*Arcé*), Bugaba (*Champion*), Lion Hill (*M. Leannan*).—SOUTH AMERICA, from Colombia to South Brazil.

This species is one of the common Hesperiidæ which has a nearly universal range over Tropical America from Southern Mexico to Southern Brazil, and varies but little throughout this wide area. The only evident departure from the normal form is found in the insect inhabiting the island of Ruatan, which we venture to distinguish by a separate name.

Xenophanes tryxus was first described and figured by Cramer, and subsequently by Hübner under the same specific name. Though redescribed by Fabricius as *Hesperia salvianus*, the species has usually passed under Cramer's name.

The species is chiefly a lowland one, being found at the sea-level both in Mexico and further south ; the limit to which it ascends the mountains does not exceed 3000 or 4000 feet.

The male genitalia have a forked tegumen, with a short blunt point at the base on either side ; the scaphium is well developed ; the harpes have a rounded end, with a rounded serrate projection on the dorsal edge near the end, about the middle of the dorsal edge is a small serrate lobe directed forwards, and near the base of the inner surface of the harpes a complex upright lobe also serrate. (See Tab. LXXXV. fig. 18.)

2. *Xenophanes ruatanensis*, sp. n.

X. tryxo similis, sed minor et multo obscurior, plagis semihyalinis alarum multo minoribus forsan distinguendus.

Hab. HONDURAS, Ruatan I. (*G. F. Gaumer*).

Two specimens of this species sent us by Dr. Gaumer differ from all the mainland individuals in being smaller and much darker. The semihyaline spots of the wings are very small. The underside is for the most part dark coloured, the light pearly-white of the allied form being almost restricted to the area surrounding the transparent spot of the secondaries.

In its dark colour this Hesperid follows the rule of the few species of *Rhopalocera* that we have seen from Ruatan I.

CARRHENES, gen. nov.

The members of this genus, like those of the preceding, have rounded primaries, the apex not being truncate. The neuration of the primaries is much as in *Xenophanes tryxus*, but the third median segment of the secondaries is short ; the lower discocellular is shorter than the middle discocellular, and both of them, as well as the radial, are feeble ; the primaries have a very pronounced fold to the costa ; and there is a large tuft of brown hairs attached to the proximal end of the hind tibiæ.

The genus has several allied species, which may be separated into two groups by the structure of the male organs, the particulars of which are given below. Nearly all the species occur in Mexico or Central America, and some of them have a wide range over the Southern Continent.

a. Male genitalia as represented on Tab. LXXXV. fig. 21.

1. **Carrhenes fuscescens.** (Tab. LXXXV. figg. 19, 20, 21 ♂.)

Leucochitonea fuscescens, Mab. Bull. Soc. Ent. Belg. 1891, p. lxi¹.

Alis fuscis, maculis obscurioribus notatis; anticis punctis septem semihyalinis—una cellulari, tribus subapicalibus et tribus discalibus; posticis fasciis maculosis tribus notatis—una distincta submarginali, una irregulari discali, tertia indistincta per cellulam: subtus isabellino-fuscescentibus, maculis obscurioribus et punctis semihyalinis ut supra sitis, illis minoribus, macula ad angulum analem nigra; palpis subtus albis. ♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Polochic Valley (*F. D. G. & O. S.*); HONDURAS¹ (*Wittkugel, mus. Staudinger*), San Pedro (*G. M. Whitely*).

Dr. Staudinger has lent us a specimen from Honduras named *L. fuscescens* by M. Mabille, and with this insect a series long in our possession agrees. The range of the species extends from Southern Mexico to Honduras, but appears to be nowhere common.

C. fuscescens is the darkest and most uniformly coloured of this section of the genus, and on the upper surface of the wings it resembles *C. meridensis*; beneath, however, the glaucous area on the secondaries of the latter species at once distinguishes it. The male organs are very different: these in *C. fuscescens* have a truncate tegumen, which is cleft in the middle, and has at each outer corner a short hook and a short spine on either side near the base; the harpes end in two lobes, the points of which approach each other, and are shaped rather like the claw of a lobster, another lobe directed forwards lies on the inner surface. (See Tab. LXXXV. fig. 21.)

2. **Carrhenes calidius**, sp. n. (Tab. LXXXV. figg. 22, 23 ♂.)

C. fuscescens similis, sed anticis ad medium marginis interni et posticis area discali omnino albicantioribus, harum fascia maculosa discali magis obvia: subtus posticis albicantibus, maculis omnibus evanescentibus, macula nigra ad angulum analem nonnunquam absente.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*); GUATEMALA, Zapote, Panama (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe, mus. Staudinger*).—AMAZONS VALLEY.

Though resembling *C. fuscescens* in the form of the male organs, and therefore evidently closely related to that species, *C. calidius* may readily be distinguished by the much paler colour of the central portion of both wings; it thus resembles *C. canescens*,

a species with different male organs, and therefore not really allied. A comparison of the figures will render their external differences apparent.

The species most nearly allied to the present one is *Leucochitonea chæremon*, Mab., which is also a *Carrhenes*. This is a Brazilian insect, of which we have a male named by comparison with the type kindly lent us by M. Mabilie.

C. chæremon is a larger insect, with the markings of the wings more distinct, and a more definite light-coloured area on the secondaries.

b. Male genitalia as represented on Tab. LXXXV. fig. 26.

3. *Carrhenes callipetes*, sp. n. (Tab. LXXXV. figg. 24, 25, 26 ♂.)

C. fuscescens similis, sed anticis maculis semihyalinis magis numerosis, macula ad cellulæ finem duplici et altera supra eas ad costam, maculis discalibus majoribus, duabus inter venam submedianam et ramum medianum; posticis quoque maculis duabus discalibus semihyalinis: subtus macula ad angulum analem nigra nulla.

Hab. MEXICO, Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes*), Cordova (*Rümelin*); GUATEMALA, Dueñas, Panima (*Champion*).—COLOMBIA.

In general colour this species resembles *C. fuscescens*, but it belongs to the group in which the male organs differ widely from those of that species. The hyaline spots on the primaries are more numerous, and a band of them extends over the discal area of the primaries nearly to the inner margin. The number of hyaline spots also separates *C. callipetes* from *C. canescens*; the latter is also a paler insect, with the underside much whiter.

C. callipetes has a wide range, extending from Southern Mexico to Colombia, but appears to be nowhere common.

The male genitalia have a forked tegumen, with a short blunt point at the base on either side; the scaphium is well developed: the harpes end in a blunt slightly upturned point; about the middle of the dorsal edge are two small lobes, which cross each other; a long serrate lobe starts from the base of the inner surface, and is directed forwards with a slight downward curve. (See Tab. LXXXV. fig. 26.)

4. *Carrhenes meridensis*. (Tab. LXXXV. figg. 27, 28 ♂.)

Achlyodes meridensis, Staud.

C. fuscescens et *C. callipeti* quoad paginam superiorem alarum similis, sed subtus posticis area interna usque ad angulum analem et marginem internum glaucescente alba facile distinguendus.

Hab. COSTA RICA, Caché (*Rogers*).—VENEZUELA.

Dr. Staudinger has supplied us with a specimen of this species from Venezuela, with the name *Achlyodes meridensis* attached to it; this title we adopt, though apparently not hitherto published. *C. meridensis* can readily be distinguished from all the other species of *Carrhenes* mentioned here by the glaucous colour which overspreads

the secondaries from the inner margin to the central portion of the wing, leaving the costa and outer margin fuscous.

The male genitalia resemble those of *C. callipetes*. We figure a specimen from Caché, Costa Rica.

5. **Carrhenes canescens.** (Tab. LXXXV. figg. 29, 30 ♂.)

Leucochitonea canescens, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 476¹.

Similis præcedentibus, sed alis pallidioribus, maculis semihyalinis minutis; anticis maculis fuscis magis obviis: subtus omnino pallidis, maculis valde irregularibus.

Hab. MEXICO, Jalisco (*Schumann*), Rincon, Acaguizotla (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Misantla (*F. D. G.*), Potrero (*Hedemann*¹), Orizaba (*H. J. Elwes*), Cordova (*Rümeli*), Atoyac (*H. H. Smith, Schumann*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Zapote, San Gerónimo, Panima (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe, in mus. Staudinger*).—COLOMBIA.

Rudolph Felder described this species from specimens obtained by Hedemann at Potrero, in the Mexican State of Vera Cruz¹. We have many examples from the same district and from various parts of Central America, where it appears to be the most abundant species of the genus. Its range in altitude extends from near the sea-level to a height of 3000 to 4000 feet in the mountains. The male genitalia resemble those of *C. callipetes*.

We figure a male specimen from Atoyac, Vera Cruz.

6. **Carrhenes leada.** (Tab. LXXXV. figg. 31, 32 ♂.)

Achlyodes leada, Butl. Trans. Ent. Soc. 1870, p. 516¹.

C. canescenti persimilis et forsan vix diversus; anticis medialiter canescentibus, ad basin et ad apicem distincte fuscescentibus; posticis quoque pallidioribus.

Hab. COSTA RICA, Caché, Irazu (*Rogers*).—COLOMBIA; VENEZUELA¹; AMAZONS; BRAZIL; PARAGUAY.

It is questionable if this species is distinct from *C. canescens*, as all the main features correspond. *C. leada*, however, has the central portion of the primaries much paler, the base and apex being dark, giving the insect a rather different facies. Its range, too, extends much further southwards.

The type from Venezuela described by Mr. Butler¹ being in poor condition hardly shows the characters so well as fresher specimens; we therefore figure a male specimen from Caché, Costa Rica.

The male genitalia are like those of *C. canescens* and *C. callipetes*.

POTAMANAX.

Potamanax, Watson, P. Z. S. 1893, p. 55.

This small genus contains eight or nine species, distinguished by their short primaries, which, though not actually truncate, have the apex rounded and the costa short relatively to the other margins. The palpi have a distinct porrect terminal joint; the cell of the primaries is narrow and short; the third median segment short, the second long; the lower and middle discocellulars are subequal, the lower radial slender; the third median segment of the secondaries is short, the second subcostal segment rather longer, both discocellulars and radial very slender. The hind tibiæ have two pairs of spurs, but no tibial tuft.

The range of *Potamanax* extends over the western portion of South America from Peru northwards, spreading in Central America as far north as Nicaragua. Four species occur within our limits.

The male genitalia of a species allied to *P. thestia*, which we describe below as *Potamanax paralus**, have a tegumen ending in two widely divergent points, with a short blunt point at the base on either side; the scaphium is well developed, and ends in two patches with granular surfaces; the harpes are subtriangular and end in a slightly upturned point about the middle of the dorsal edge, the margin is thickened and granular, and between this and the apex are a few widely separated distinct teeth, from the inner surface near the base is an erect slightly recurved lobe. (See Tab. LXXXVI. fig. 1.)

1. ***Potamanax pammenes***, sp. n. (Tab. LXXXVI. figg. 2, 3.)

Alis nigricantibus, fascia communi lata a venæ subcostalis anticarum medio ad angulum posticarum analem alba, ad marginem anticarum internum flavo vix tincta: subtus dilutioribus, posticis usque ad basin griseo-albidis; palpis infra albis.

Hab. NICARAGUA, Chontales (*Belt*).

This species is closely allied to *P. unifasciata* (Feld.) from Colombia, but differs in having the apex of the primaries uniform, the diaphanous spots of *P. unifasciata* being wholly absent. The inner margin of the white band of the primaries is not tinged with rufous-orange; but the whole band has a slight yellow shade where it runs out to the inner margin.

A species closely allied to *P. pammenes* occurs in Ecuador, differing in having the white band of the secondaries more restricted and not continued to the inner margin. *P. thoria* is also closely allied, but has the common white band, especially on the primaries, considerably narrower.

* ***Potamanax paralus***, sp. n.

P. thestia affinis, sed fascia alarum communi multo angustiore, in posticis abbreviata.

Hab. Peru, Cosnipata Valley (*H. Whitely*).

This is the species referred by Mr. Druce to *Pyrgus thestia* (P. Z. S. 1876, p. 249).

2. *Potamanax melicertes*, sp. n. (Tab. LXXXVI. fig. 4.)

P. pammeni affinis, sed fascia alarum communi alba usque ad costam anticarum extendente, contra in posticis marginem internum haud approximante.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*).

Dr. Staudinger has lent us a specimen of this species under the name *Leucochitonea unifasciata*, Feld.; but it differs from that insect by the absence of the spots in the apex of the primaries, and the rufous-orange inner edge to the white band on the same wings. From *P. pammenes* it differs as noted above.

3. *Potamanax caliadne*, sp. n. (Tab. LXXXVI. figg. 5, 6.)

Alis nigricantibus; anticis fascia mediana venis nigris octopartita alba, maculis duabus, una rami mediani primi utrinque et margine interno ad medium indistincte aurantiacis, area discali fusco maculato, punctis submarginalibus quoque fusco-albidis; posticis plaga magna mediana alba costam attingente, sed angulo anali haud approximante: subtus fuscis, fascia communi lata alba, maculis submarginalibus albis; anticis area apicali pallide fusco variegata, posticis ad basin glaucescentibus; palpis subtus griseo-albidis.

Hab. COSTA RICA, Caché (*Rogers*).

We have only one specimen of this species, which was captured at Caché in Costa Rica by Mr. H. Rogers. The species is allied to *P. thestia* and *P. latrea*: from the former (taking Hewitson's "male" as the type) it differs in having the dark portions of the primaries more distinctly variegated, and the white patch of the secondaries much larger, as well as in other minor points; and from the latter it differs in the more definite band of the primaries and its white colour, the patch of the secondaries being much wider and confined to the inner area of the wing, not approaching the inner margin.

4. *Potamanax latrea*.

Leucochitonea latrea, Hew. Ex. Butt., *Leucochitonea*, ii. f. 14¹.

Alis fusco-nigricantibus, fascia communi mediana albicante in anticis fuscescentiore et venis octopartita, area discali indistincte pallide fusco variegata, punctis submarginalibus indistincte fuscis, in posticis integra a costa usque ad marginem internum extendente: subtus fuscis, fascia communi multo latiore in posticis albicantiore et fere integra; posticis ad basin glaucescentibus.

Hab. NICARAGUA (*Mus. Brit.* ¹).

The single specimen in the Hewitson collection in the British Museum is the only one we have seen.

5. *Potamanax xantholeuce*. (Tab. LXXXVI. fig. 7.)

Ephyriades xantholeuce, Mab. Le Nat. x. p. 242, f. 5 (1888) ¹.

Alis brunneis, fascia irregulari communi obscure aurantiaca, in anticis venis quadripartita sed costam haud attingente, in posticis integra costam attingente sed margine interno remota, area discali indistincte nubilosa: subtus ut supra, fascia communi multo latiore, in anticis integra costam attingente, posticis ad basin et ad marginem internum glaucescentibus.

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Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger* ¹).

M. Mabilie's type, a female, has been lent us by Dr. Staudinger, and from it our figure is taken. The species is allied to *P. latrea* and *P. caliadne*; but differs in many points, as a comparison between the figures of it and of the latter will show.

ACHLYODES.

Achlyodes, Hübner, Verz. bek. Schm. p. 107 (1816); Wats. P. Z. S. 1893, p. 52.

This generic name has been used in a very wide sense by writers, until Mr. Watson restricted it to *A. fridericus* and its immediate allies. We find eight species occurring within our limits, some of which, however, for want of sufficient materials, we place here with diffidence.

The palpi of *Achlyodes* have a short terminal porrect joint, the antennæ have a rather long gradually thickened and pointed club; the primaries have no costal fold, the third median segment is very short, the lower and middle discocellulars subequal; the third median segment of the secondaries is very short, much shorter than the second subcostal segment, the discocellulars and radial are very feeble.

a. No hyaline spots in the apex of the primaries.

1. *Achlyodes fridericus*. (Tab. LXXXVI. fig. 8.)

Achlyodes fridericus, Geyer, in Hübn. Zutr. ex. Schm. iv. p. 9, ff. 611, 612 (1832) ¹.

Alis nigricantibus; anticis dimidio distali fusco irregulariter variegato; posticis fascia maculosa valde indistincta discali notatis: subtus vix pallidioribus, anticis fere immaculatis, fasciis duabus submarginalibus indistinctis pallidioribus; posticis area marginis externi ad angulum analem late canescente, longitudinaliter indistincte bisecta; palpis subtus fuscis.

Hab. PANAMA, Bugaba (*Champion*), Chiriqui (*Ribbe, mus. Staudinger*), Lion Hill (*M^r Leannan*).—VENEZUELA; GUIANA ¹.

Achlyodes fridericus, in its typical form, has a well-defined patch of white on the underside of the secondaries occupying the anal angle and a portion of the outer margin. We have several specimens from the State of Panama which have this character. In the Amazons Valley and Brazil other forms occur in which this white patch becomes almost obsolete, so that the limits of the species are somewhat uncertain.

The male genitalia have a tegumen consisting of a stout single rod with a blunt end; the scaphium is long and sharply pointed and lies close under the tegumen; the harpes have two rather widely separated lobes, the upper one thin and with undulating edges, the lower one stouter, slightly upturned, the end being symmetrically rounded and carrying a number of long slender hairs. (See Tab. LXXXVI. fig. 8.)

2. **Achlyodes caliginea.** (Tab. LXXXVI. figg. 9, 10 ♂.)

Achlyodes caliginea, Mab.

A. friderici similis, sed posticis omnino fusco-nigricantibus, fascia submarginali indistincte fusca tantum notatis.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*), Misantla (*F. D. G.*), Teapa (*H. H. Smith*); GUATEMALA, Panima, San Gerónimo, San Isidro (*Champion*); HONDURAS (*Wittkügel, mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*).—COLOMBIA; VENEZUELA.

This is the prevalent form of *Achlyodes* throughout Central America, where it is common from the Mexican State of Vera Cruz southwards to Panama, Northern Colombia, and Venezuela. It is a larger, darker insect than *A. fridericus*, and has no white on the secondaries beneath.

The male genitalia resemble those of *A. fridericus*, and there can be no question that the two species are strictly congeneric.

The name we use is one found attached by M. Mabille to a specimen lent us by Dr. Staudinger. We have not been able to find the description.

3. **Achlyodes calavius**, sp. n. (Tab. LXXXVI. figg. 11, 12 ♂.)

Alis saturate brunneis unicoloribus, punctis semihyalinis nullis: subtus quoque brunneis, paulo pallidioribus.

Hab. GUATEMALA, San Gerónimo, Zapote (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*).

This is one of the dark unicolorous species of Hesperiidæ which is difficult to place with certainty. The wings are wholly destitute of marks, but in shape suggest that *Achlyodes* is probably the genus into which the species should be placed, at least for the present.

We have four specimens before us, one from each of the localities given above.

b. A single hyaline spot in the apex of the primaries.

4. **Achlyodes bubaris**, sp. n. (Tab. LXXXVI. figg. 13, 14 ♂.)

Alis nigricantibus, marginibus externis paulo pallidioribus; anticis puncto unico semihyalino subapicali costam approximante: subtus pallidioribus et brunnescentioribus; palpis subtus griseo-albicantibus.

Hab. MEXICO, Cuesta de Misantla (*M. Trujillo*).

We have two specimens of this dark-coloured species, which seems best placed in *Achlyodes*. A single semihyaline spot between the third and fourth subcostal branches of the primaries seems a characteristic feature of the species, distinguishing it from the other members of the genus.

c. Several hyaline spots in the apex of the primaries.

5. **Achlyodes simplex.** (Tab. LXXXVI. figg. 15, 16 ♀.)

Alis saturate brunneis, fere unicoloribus, fascia submarginali communi vix pallidiore; anticis punctis tribus subapicalibus semihyalinis, medio minimo: subtus ut supra, vix pallidioribus.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).

Dr. Staudinger has lent us a specimen of this species from his collection bearing the name "*Nisoniades cyclops*, Mab.," but it does not agree with the description of "*Achlyodes cyclops*, Mab.," a species which we refer to further on. *A. simplex* occurs in Chiriqui with *A. fasciata*, from which it differs in having the primaries beneath nearly wholly dark.

6. **Achlyodes fasciata**, sp. n. (Tab. LXXXVI. fig. 17.)

Alis saturate brunneis; anticis fascia lata submarginali paulo pallidiore, punctis tribus subapicalibus semihyalinis, medio minimo; posticis fere unicoloribus, fascia submarginali vix pallidiore: subtus pallidioribus, anticis fascia lata submarginali ochracea, margine suo interno valde sinuato.

Hab. PANAMA, Chiriqui (*Trötsch*).

We have seen two specimens of this species, both of them submitted to us by Dr. Staudinger.

Both these specimens appear to be females, and we are a little doubtful whether the species is really distinct from *A. simplex*, of which we have only seen a single example. The very obvious wide submarginal ochraceous band on the primaries beneath, in the present species, in contrast to the nearly uniform wings of *A. simplex*, seems sufficient to separate them.

7. **Achlyodes colotes**, sp. n. (Tab. LXXXVI. figg. 18, 19 ♀.)

♀. Alis ad basin fere omnino nigricantibus, fascia basali distincta nulla, fascia pallida submarginali lata: subtus griseo-fuscis, posticis pallidioribus, maculis magnis fuscis notatis; palpis subtus et corpore subtus albicantibus.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*).

We have two specimens of this species, both of them unfortunately females, so that its position is somewhat doubtful. On the upperside of the wings they resemble *A. simplex*, but differ beneath, as will be seen by reference to the figures.

8. **Achlyodes oclus.** (Tab. LXXXVI. figg. 20, 21 ♀.)

Achylodes oclus, Mab. Le Nat. xi. p. 25, f. 3 (1889)¹.

Alis rufo-brunneis; anticis fasciis duabus indistinctis, exteriore interrupta, punctis tribus in linea recta subapicalibus semihyalinis; posticis fascia arcuata discali et margine externo fuscis: subtus pallidioribus, posticis dimidio anali flavido, ciliis fuscis.

♂ ignotus.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

Dr. Staudinger has lent us the type of this species, the only specimen we have seen. It is a female.

SOSTRATA, gen. nov.

The primaries in this genus are rather elongated, the outer margin being evenly rounded; the palpi have a rather long porrect terminal joint; the antennæ much as in *Achlyodes*, with a curved rather elongated club tapering to a point; the primaries have a distinct costal fold, the third median segment is very short, the lower discocellular rather shorter than the middle; the third median segment of the secondaries is very short, about one-third the second subcostal segment, the discocellulars and radial are very feeble; the hind tibiæ have two pairs of spurs and a tibial tuft.

The range of the genus extends from Eastern Mexico to South-eastern Brazil, three species being found within this wide area.

1. *Sostrata scintillans*. (Tab. LXXXVI. figg. 22, 23, 24 ♂.)

Leucochitonea scintillans, Mab. Bull. Soc. Ent. Fr. 1876, p. cc¹.

Alis nigricantibus, ad margines vix violaceo tinctis; anticis bitriente basali squamis nitide argenteo-cæruleis irregulariter notatis, fasciisque undulatis angustis nigris ornatis, punctis duobus submarginalibus semi-hyalinis; posticis parte basali cæruleo atomatis, fasciis tribus indistinctis fuscis: subtus pallide fuscis, anticis fusco nebulosis, posticis indistincte fusco zonatis; palpis subtus griseo-albidis.

Hab. MEXICO, Acapulco, Dos Arroyos, Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Panima, Cahabon, Zapote (*Champion*); COSTA RICA, Irazu, Caché (*Rogers*).—GUIANA¹; BRAZIL¹.

The types of this pretty species came from Guiana and Brazil, and from the latter country we have several examples agreeing accurately with a good series from Mexico and Central America, where the species appears to be fairly common.

The male genitalia have a tegumen consisting of a central piece, the edges of which are bent downwards; the whole piece is slightly curved and truncate at the end, the corners slightly projecting; on either side from the base a curved rod proceeds and reaches almost to the end of the central piece: the scaphium is well developed and covered at the end with a granular surface; the harpes are very simple and end in a lobe, the upper edge of which is armed with strong bristles, the middle of the dorsal edge is broken. (See Tab. LXXXVI. fig. 24.)

2. *Sostrata leucorrhœa*, sp. n.

S. scintillanti similis, sed posticis subtus dimidio anali glauco-albo; anticis quoque subtus ad marginem internum albo notatis.

Hab. PANAMA, Chiriqui (*Ribbe*), Panama (*J. J. Walker*), Taboga I. (*Mathew*).—COLOMBIA.

A close ally of *S. scintillans*, the place of which it apparently takes in the State of Panama, Colombia, and Venezuela. The white apical angle of the secondaries beneath is a marked feature, distinguishing it from the allied form.

3. **Sostrata pusilla**, sp. n. (Tab. LXXXVI. figg. 25, 26 ♂.)

Præcedentibus similis, sed multo minor; alis nigricantioribus ad basin tantum cæruleo atomatis; anticis punctis subapicalibus nullis.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*).—AMAZONS VALLEY.

This little species is evidently allied to *S. scintillans*, but differs in being much smaller, with darker wings, the blue scales being confined to the basal half, and the absence of hyaline spots in the apex of the primaries. We have as yet only seen four specimens of *S. pusilla*—one from each of our Central American localities, and two from the Amazons Valley, taken by Bates at Ega and Santarem. All four are males.

PACHES, gen. nov.

Pythonides, Watson, P. Z. S. 1893, p. 51 (partim).

Under this genus, of which *Phareas loxus*, Westw., may be considered the type, we include all the species placed in *Pythonides* by Mr. Watson which have the hind tibiæ in the male with two pairs of spurs and a tibial tuft. In true *Pythonides* the latter character is absent, and in the next genus we find only one pair of spurs.

The antennæ have a rather long tapering club, which is curved and drawn to a point; the palpi have a rather prominent porrect terminal joint; the third submedian segment of the primaries is moderately long, less than half, but more than a third, the second joint, the lower and middle discocellulars are subequal and in a line, and they as well as the radial are feeble; the third median segment of the secondaries is distinct and only slightly shorter than the second subcostal segment; the discocellulars and radial are very feebly developed.

The range of *Paches* extends throughout the Neotropical region from Southern Mexico to South Brazil.

1. **Paches loxus**. (Tab. LXXXVI. fig. 27 ♂.)

Phareas loxus, Westw. in Doubl. & Hew. Gen. Diurn. Lep. p. 516¹.

Pythonides loxus, Hew. Gen. Diurn. Lep. t. 80. f. 4²; Wats. P. Z. S. 1893, p. 51³.

Leucochitonea loxus, Kirby, Cat. Hew. Coll. p. 231⁴.

Alis fusco-nigricantibus; anticis ad basin et linea irregulari discali margini externo subparallela læte saturate cyaneis; posticis area interna omnino hujus coloris: subtus fere omnino fuscis, posticis squamis paucis in lineis duabus transversis positae tantum notatis.

♀. Alis supra colore cyaneo nulla; anticis punctis quibusdam semihyalinis in linea valde irregulari et interrupta positae a costa usque ad marginem internum; posticis linea mediana transversa, squamis sparsis glaucis composita, introrsum melius definita.

Hab. MEXICO⁴, Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic and Motagua Valleys (*F. D. G. & O. S.*), Panima, San Gerónimo (*Champion*), Pacific coast (*F. D. G. & O. S.*), Zapote, San Isidro, Paraiso (*Champion*), Volcan de Santa Maria (*W. B. Richardson*); HONDURAS (*Dyson*), San Pedro (*G. M. Whitely*); NICARAGUA⁴; COSTA RICA, Irazu, Caché (*Rogers*); PANAMA, Bugaba, David (*Champion*), Chiriqui (*Ribbe, Arcé*), Veraguas (*Arcé*), Lion Hill (*M. Leannan*).—SOUTH AMERICA generally, from Colombia to South Brazil.

This common species was named and figured in Doubleday and Hewitson's 'Genera of Diurnal Lepidoptera' from a specimen from an unknown locality in the collection of the latter lepidopterist. The specimens now in the Hewitson collection are stated to be from Mexico and Nicaragua. We have only a few examples of *P. loxus* from the State of Vera Cruz, but at Teapa and throughout Guatemala and the rest of Central America the species is evidently very abundant. Though hardly so common in the southern continent it yet has a very wide range.

Fresh male specimens show a rich dark blue tint on the wings, but this becomes greenish in others that appear to be less fresh or stained.

Mr. Watson placed *P. loxus* in the section of *Pythonides* amongst the species in which the hind tibiæ possess only the terminal pair of spurs. In our prepared specimens both pairs are distinctly visible, as well as the tibial tuft of hairs.

The male genitalia have a short cleft tegumen, the branches being slightly divergent; the scaphium is well developed: the harpes are rounded at the end, and from the dorsal edge a long curved rod arises and bends downwards in front of the end of each harpe; a lobe slightly leaning forwards arises from near the base of the ventral edge and lies inside the disc of the harpe. (See Tab. LXXXVI. fig. 27.)

2. *Paches polla*. (Tab. LXXXVI. figg. 28, 29 ♂.)

Pythonides polla, Mab. Le Nat. x. p. 254, f. 1 (1888)¹.

P. loxo affinis, sed anticis ad basin haud cyaneis, punctis quoque subapicalibus duobus aut tribus semihyalinis, area ad angulum analem squamis glaucis atomata; posticis colore cyaneo pallidiore et magis nitido, fascia transversa mediana et altera infra eam indistincta glaucescentibus, linea quoque abbreviata ad angulum apicalem: subtus undique squamis pallidis, sparsim notatis.

Hab. MEXICO, Acapulco, Acaguizotla, Rio Papagaio, Dos Arroyos, all in Guerrero (*H. H. Smith*); COSTA RICA¹, Irazu and Caché (*Rogers*).

M. Mabille described this species from a specimen from Costa Rica in Dr. Staudinger's collection, and the type is now before us. It agrees with other examples in our collection from Costa Rica, and a small series from the State of Guerrero, but we have no evidence of the occurrence of the species in any of the intervening country. As in *P. loxus* the hind tibiæ of the male have two pairs of spurs and a long tibial tuft.

The genitalia of the male closely resemble those of *P. loxus*.

3. *Paches subalbatus*. (Tab. LXXXVI. fig. 30 ♀.)

Pythonides subalbata, Plötz, Jahrb. nass. Ver. xxxvii. p. 12 (1884) ¹.

Pythonides subornatus, Mab. Le Nat. x. p. 255, f. 2 (1888) ².

Pythonides zonula, Mab. Le Nat. xi. p. 67, f. 1 (1889) ³.

Alis brunneis, fere unicoloribus, fasciis duabus communibus subobsoletis, squamis sparsis glaucis compositis, ab anticarum medio usque ad medium marginis posticarum interni; anticis punctis tribus costalibus ad angulum apicalem: subtus anticis fere ut supra, posticis dimidio angulo anali proximo albido, linea submarginali brunnea notatis.

♂ nobis adhuc ignotus.

Hab. PANAMA (*Ribbe, in mus. Staudinger* ¹), Lion Hill (*M'Leannan*).—COLOMBIA ¹; VENEZUELA.

Of this species we have specimens from Venezuela given us by Herr Semper, and named "*subalbata*, H.-S. i. l. Plötz, Taf. 453"; also the types, lent us by Dr. Staudinger, of *P. subornatus*, Mab., and *P. zonula*, Mab., and we have no doubt all belong to the same species, which should bear the name *P. subalbatus*, Plötz. The only point on which we have any doubt is whether the specimen described by M. Mabilie as the female of his *P. zonula* is really conspecific. The distal half of the secondaries beneath is sprinkled with bluish scales instead of being nearly pure white with a submarginal macular band as in all our other specimens.

P. subalbatus only just enters our fauna; the few specimens we have seen from within our border were all taken on the Line of the Panama Railway.

We believe all the specimens we have seen of this species to be females; none of them have a tibial tuft of hairs that we can detect on the hind legs, but the tibiæ have both pairs of spurs as in *P. loxus* and its allies.

4. *Paches geometrinus*.

Helias geometrina, Feld. Reise d. Nov. Lep. p. 534, t. 74. f. 5 (1867) ¹.

Pythonides geometrina, Wats. P. Z. S. 1893, p. 51 ².

Achylodes hadina, Butl. Trans. Ent. Soc. 1870, p. 517 ³.

Achylodes corbianus, Plötz, Jahrb. nass. Ver. xxxvii. p. 15 (1884) ⁴.

Alis brunneis, fasciis duabus communibus bene separatis saturatiore fuscis pallide limbatis, marginibus externis plus minusve parallelis, linea submarginali quoque fusca marginibus ipsis pallidis: subtus pallidioribus, anticis squamis fulvis sparsim atomatis, plaga elongata fulva discali quoque notatis; posticis undique squamis albidis sparsim notatis, lineisque transversis evanescentibus albidis quoque instructis.

♀ mari similis, sed fasciis paginæ alarum superioris magis obviis.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA generally, from Colombia ¹ and Venezuela ¹ to South Brazil ^{3 4}.

Felder's types of this species came from Colombia and Venezuela ¹, Mr. Butler's type of *A. hadina* from Brazil ³, and Plötz's type of *A. corbianus* from Rio Janeiro ⁴. All these names appear to be synonyms of *P. geometrina*. Of *A. corbianus* we have a specimen from Novo Friburgo given to us by Herr Semper thus named,

with a reference to Plötz's plate no. 962; this agrees with the type of *A. hadina* and Felder's figure.

The hind tibiæ have two pairs of spurs and a slender tibial tuft of hairs.

The male genitalia have the harpes very similarly constructed to those of *P. loxus*, the lower lobe is wider and more angular, the upper more slender and pointed. (See Tab. LXXXVI. fig. 27.)

ATE, gen. nov.

In this genus we place all the species, formerly in *Pythonides*, which have only one pair of spurs to the hind tibiæ. *P. jovianus* may be taken as the type.

The antennæ and palpi are as in the last genus; the third median segment is much shorter, the discocellulars and radial stronger; the third median segment of the secondaries is very short, the second subcostal segment comparatively long. The hind tibiæ of the male have a large tuft.

The range of this genus extends from Guatemala to South Brazil. Besides the species mentioned below, *Pythonides fabricii*, Kirby, *Leucochitonea lagia*, Hew., and *L. lerina*, Hew., all belong to *Ate*.

1. *Ate proxenus*, sp. n. (Tab. LXXXVI. figg. 31, 32, 33 ♂.)

Alis nigris, anticis punctis tribus parvis discalibus semihyalinis (uno in cellula, duobus extra eam) et duobus aut tribus costalibus ad angulum apicalem; posticis margine externo (præter angulum apicalem) late cæruleo: subtus anticis ut supra, ad marginem internum pallidioribus; posticis nitente cæruleis, margine costali, angulo apicali, linea irregulari submarginali et maculis quibusdam discalibus fusco-nigricantibus; palpis medialiter infra albis, lateribus et segmento ultimo nigris.

Hab. GUATEMALA, Yzabal and Choctum (*F. D. G. & O. S.*), Panama (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Bugaba, Veraguas (*Arcé*), Chiriqui (*Ribbe, in mus. Staudinger*).

A close ally of *A. lagia* (Hew.), but with fewer spots on the primaries and less broken expanse of blue on the outer portion of the secondaries beneath. *A. lerina* (Hew.) is also allied, but in this species the secondaries are crossed by a blue band instead of having a blue margin.

The hind tibiæ in the male have a single pair of spurs and a long tibial tuft.

Of this species we have several male specimens obtained in various parts of the Central-American lowlands from Guatemala to the State of Panama.

The male genitalia have a simple tegumen ending in a depressed point, much as in *Pythonides cerialis*; the scaphium is well developed, and the harpes are simple lobes with rounded ends, the outer portion being slightly upturned. (See Tab. LXXXVI. fig. 33.)

2. *Ate pteras*, sp. n. (Tab. LXXXVI. figg. 34, 35 ♂.)

A. proxeno similis, sed anticis punctis semihyalinis nullis squamis paucis cæruleis maculis indistinctis formant-

ibus in dimidio distali; posticis margine externo (præter angulum apicalem) glauco cæruleo, limbo suo interno bene definito: subtus anticis immaculatis; posticis (præter marginem costalem et angulum apicalem fuscis) omnino glauco-cæruleis.

♀ adhuc nobis ignota.

Hab. PANAMA, Chiriqui (*Ribbe, mus. nostr.*), David (*Champion*).

Two male specimens of this species differ from *A. proxenus* and *A. lagia* in having the primaries destitute of spots, the secondaries with a narrower duller blue border, and with these wings beneath uninterruptedly blue, except a narrow dark costal border.

The hind legs in both our specimens are wanting, so that the position of this species cannot be given with certainty.

3. *Ate jovianus*.

Papilio jovianus, Cr. Pap. Ex. t. 392. ff. L, M ¹.

Pythonides jovianus, Wats. P. Z. S. 1893, p. 51 ².

Alis nigris, anticis macula in cellula, una venis tripartita infra eam et punctis quatuor in linea fere recta positis ad angulum apicalem semihyalinis, linea submarginali maculosa cærulea, maculis ad angulum analem elongatis; posticis interne læte cæruleis, marginibus et venis nigris: subtus anticis ut supra, lineæ submarginalis cæruleæ maculis elongatis ad angulum analem tantum præsentibus; posticis nitide cæruleis, costa, margine externo et venis extus tantum nigris.

Hab. GUATEMALA, Polochic Valley (*F. D. G. & O. S.*).—GUIANA; AMAZONS VALLEY.

Our sole authority for including this species in our fauna is a male specimen taken by ourselves during our expedition to Guatemala in 1861–63. In South America it is not uncommon in the Amazons Valley and Guiana.

The hind tibiæ of the male have a single pair of spurs and a long tuft of hairs from the proximal end.

The male genitalia closely resemble those of *A. proxenus*.

4. *Ate amaryllis*. (Tab. LXXXVI. figg. 36, 37 ♂.)

Pythonides amaryllis, Staud. Verh. zool.-bot. Ges. Wien, 1875, p. 114 ¹.

A. joviano similis, sed macula semihyalina anticarum per cellulam integra: subtus maculis duabus elongatis cæruleis ad angulum analem vix distinguendus.

Hab. GUATEMALA, Forests of N. Vera Paz, Choctum, Polochic Valley (*F. D. G. & O. S.*), Panima, San Juan (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba, San Feliz (*Champion*), Chiriqui (*Ribbe, in mus. Staudinger* ¹), Veraguas (*Arcé*).—ECUADOR.

A species closely allied to *A. fabricii* (Hübner), but may readily be distinguished by the absence of white on the disc of the secondaries, the inner area of these wings being uniform blue cut only by the black veins. From *A. jovianus* it differs in having the median white band of the primaries entire and not split up into spots.

A. amaryllis was described by Dr. Staudinger ¹ from a specimen, now before us, sent

him by Herr Ribbe from Chiriqui. We now trace the species over the whole of Central America, from Eastern Guatemala southwards. We have also specimens of Buckley's collecting from Ecuador.

The hind tibiæ of the male, like those of *A. jovianus*, have a single pair of spurs and a long tibial tuft.

The male genitalia are like those of *A. jovianus* and *A. proxenus*.

MILANION, gen. nov.

Papilio hemes, Cramer, which we take as the type of this genus, was assigned to *Paramimus* by Mr. Watson, but differs in several respects. The antennæ have a longer sharper club, the cell of the primaries is wider and relatively shorter, those wings are less rounded, and the general style of coloration is distinct.

Besides the species described below and *M. hemes* we place in this genus *Pythonides leucaspis*, Mab. (Pet. Nouv. Ent. ii. p. 230), from a specimen of which we have taken the male genitalia. These have a tegumen terminating in a widely divergent pair of points, the scaphium is well developed, and the harpes very simple, ending in a single slightly upturned blunt lobe; on the inner surface of the base is an elongated piece with a thickened dorsal edge, bearing a few well-defined teeth. (See Tab. LXXXVII. fig. 1.)

1. *Milanion marciana*, sp. n. (Tab. LXXXVII. figg. 2, 3.)

Alis nigris; anticis maculis quinque subapicalibus in linea irregulari transversa positis, duabus inferioribus maximis, secunda a costa minima, semihyalinis; fascia mediana venis tripartita a vena mediana extra cellulam ad marginem internum, in posticis producta sed multo latiore, aream medianam occupante usque ad marginem internum alba: subtus ut supra; palpis subtus albis, apicibus nigris; abdomine medialiter late albo cincto.

♀ adhuc ignota.

Hab. PANAMA, Chiriqui (*Ribbe, mus. Staudinger*), Bugaba (*Champion*).

We have seen two specimens of this species, one of them lent us by Dr. Staudinger. The well-known *Papilio hemes*, Cramer, is the nearest ally of *M. marciana*; but differs in having a much narrower median white band to the secondaries, besides which there is a white spot in the cell, not shown in the present insect.

2. *Milanion marica*, sp. n. (Tab. LXXXVII. figg. 4, 5.)

Alis nigris; anticis maculis quinque subapicalibus, fere æqualibus, ea costæ proxima paulo elongata, semihyalinis, macula altera inter venam medianam et ramum suum secundum ejusdem coloris; fascia mediana transversa costam fere attingente, per cellulam ad marginem internum ducta et posticas transeunte, ad angulum analem alba: subtus ut supra, alis ad basin glaucescentibus; palpis subtus albis, apicibus nigris.

Hab. NICARAGUA, Chontales (*Belt*).

We have a single specimen of this species from Belt's collection. It is in rather poor condition, and we are in some doubt whether it is rightly placed here. It bears some resemblance to *Potomanax*, but the primaries are more elongated than is usual in that genus.

EANTIS.

Eantis, Boisduval, Sp. Gén. Atlas, t. 13. f. 6 (1836); Wats. P. Z. S. 1893, p. 57.

We use this genus in a rather more restricted sense than Mr. Watson, who placed in it Mr. Butler's *Achlyodes rosina*, *A. gorgophone*, and Felder's *Helias mexicana*, a distinct form, as will be seen under the next genus. This leaves us *E. busirus*, *E. thraso*, and *E. pallida* of our region, which agree in some points, but differ in others, so that even now *Eantis* is a heterogenous group.

The type *E. busirus* has the primaries slightly falcate, the outer margin very convex in the middle and concave towards the apex. The cell is long and narrow, the third median segment about half the length of the second segment; the lower and middle discocellulars are feeble, oblique, and subequal, the latter bent in the middle; the secondaries have very feeble discocellulars, the radial hardly visible, the third median segment is short but distinct, rather shorter than the second subcostal segment; the secondaries in the male have a tuft of black hairs near the base of the costa on the upperside, and a black scaly patch adjoining, on the underside of the primaries at the base of the inner margin is a corresponding tuft and scaly patch. The palpi have a very short terminal joint just appearing beyond the clothing of the second joint; the hind tibiæ of the male have two pairs of spurs and a well-developed tuft.

In *E. thraso* the margin of the secondaries is more regularly rounded, and there are no tufts on the wings at their bases; the radial of the secondaries is stronger, and the lower discocellular rather the longer of the two, the third median segment being very short. In *E. pallida* the outer edge of the primaries is evenly convex throughout from the apex to the anal angle, the palpi are more prominently porrect, the secondaries being much as in *E. thraso*.

E. busirus and *E. thraso* have a very wide range in tropical America, the range of *E. pallida* being more restricted to the western portion of the continent, Central America, and Mexico.

1. *Eantis busirus*. (Tab. LXXXVII. fig. 6.)

Papilio busirus, Cr. Pap. Ex. t. 261. ff. A-C¹.

Eantis busiris, Wats. P. Z. S. 1893, p. 57².

Papilio sebalus, Fabr. Mant. Ins. ii. p. 89³.

Alis purpureo-nigricanti-brunnescentibus; anticis pallidiore brunneo transversim sed irregulariter variegatis; posticis basi et fasciis duabus irregularibus indistincte pallidioribus: subtus fere unicoloribus; anticis squamis quibusdam aurantiis ad apicem et ad angulum analem; posticis angulo anali et marginis externi bitriente anali aurantiis maculis nigricantibus ornatis; palpis omnino saturate fuscis.

♀ mari similis, sed omnino pallidioribus, maculis anticarum et fasciis irregularibus evanescentibus; posticis quoque pallidioribus, area mediana tantum obscura.

Hab. MEXICO, Jalisco (*Schumann*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Zapote, Torola, El Tumbador, Panima (*Champion*),

Polochic Valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Ribbe*), Calobre (*Arcé*), Lion Hill (*M'Leannan*).—SOUTH AMERICA, from Colombia to South Brazil and Paraguay.

Mexican and Central-American specimens of this species all have the distinct yellow patch at the anal angle and the neighbouring portion of the outer margin. This form also extends through Venezuela, Colombia, and thence southwards to South-eastern Brazil and Paraguay. In the Valley of the Upper Amazons this yellow patch becomes more contracted, and in the Lower Amazons region, and no doubt Guiana, it disappears altogether, the secondaries being nearly uniform throughout.

Cramer figures both forms, of which he considers the one with yellow on the secondaries to be the male. This view is not correct, for we find no difference between the sexes in this respect.

The question of the specific distinction of these forms is not raised by that found in our country, which agrees with Cramer's fig. C, and may be called *E. busirus*. Fabricius's *Papilio sebalus* refers to the same form.

Eantis busirus is a very common species in Central America, and occurs more sparingly in Southern Mexico on both sides of the mountain-range. It is a species of the hot country, with a range in altitude probably not exceeding 3000 or 4000 feet.

The male genitalia have a tegumen ending in a strong central truncate rod, slightly hooked; at its base are two erect rods, one on either side, slightly curved forwards. The scaphium is well developed, and the harpes end in a rounded lobe, the dorsal edge of which is strongly serrate; near the middle of the dorsal edge, where there is a fissure, is a small subsidiary lobe, serrate and dependent on the right harpe, smooth and erect on the left. (See Tab. LXXXVII. fig. 6.)

2. *Eantis thraso*. (Tab. LXXXVII. fig. 7.)

Urbanus vetus thraso, Hübn. Samml. ex. Schm. i. t. 151¹.

Eantis thraso, Boisd. Sp. Gén. Atlas, t. 13. f. 6²; Wats. P. Z. S. 1893, p. 57³.

Alis brunneo-nigricantibus, fusco irregulariter plagiatis, fascia submarginali squamis cærulescentibus composita, plaga subtriangulari ad costam apud angulum apicalem: subtus fere immaculatis rufescenti-purpureo suffusis; palpis saturate fuscis.

♀ mari similis, sed omnino pallidioribus, maculis omnibus magis obviis.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Tampico (*W. B. Richardson*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*), Belize (*Blancaneaux*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Zapote, San Juan, Panima, Panzos, Telemán (*Champion*), Polochic and Chisoy Valleys (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S., Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Irazu (*Rogers*); PANAMA, Bugaba, David, Tolé (*Champion*), Calobre (*Arcé*), Lion Hill (*M'Leannan*).—SOUTH AMERICA generally to Paraguay; ANTILLES.

A very abundant species throughout tropical America, occurring nearly everywhere in the lowlands from Tampico and Mazatlan in Mexico to South Brazil and Paraguay, and presenting no noticeable variation anywhere in this wide area.

The male genitalia are similar to those of *E. busirus*; the central rod of the tegumen is shorter, and the erect rods at its base slightly spatulate; the terminal lobe of the harpes carries some very large teeth, with smaller ones intervening; from the proximal side of the dorsal fissure a long rod proceeds, having a serrate rounded end. (See Tab. LXXXVII. fig. 7.)

3. *Eantis pallida*. (Tab. LXXXVII. figg. 8, 9, 10.)

Helias pallida, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 478¹.

Eantis pallida, Wats. P. Z. S. 1893, p. 57².

Achlyodes ozotes, Butl. Trans. Ent. Soc. 1870, p. 515³; Butl. & Druce, P. Z. S. 1874, p. 370⁴.

Alis nitide ochraceo-brunneis, basi fasciis duabus macularibus tertiaeque evanescente submarginali diffusis saturatioribus: subtus anticis dimidio basali et posticis fere omnino saturate brunneis, illarum dimidio apicali pallido; palpis subtus et corpore toto saturate brunneis.

♀ mari similis.

Hab. MEXICO, Cordova (*Rümel*i), Jalapa (*Hedemann*¹, *Höge*), Orizaba (*H. J. Elwes*), Potrero (*Hedemann*¹), Mazatlan (*Forrer*), Morelia (*F. D. G.*), Omilteme, Xucumanatlan (*H. H. Smith*); GUATEMALA, Cerro Zunil, Chilasco (*Champion*), Dueñas (*F. D. G. & O. S.*, *Champion*), Chisoy and Polochic Valleys, San Gerónimo (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴), Irazu, Caché (*Rogers*), Santa Clara Valley (*Zurcher*); PANAMA, Chiriqui (*Arcé*).—SOUTH AMERICA, from Colombia¹ to Bolivia³.

This is a widely-spread common species in Mexico and Central America, extending on the west coast of the former country as far north as Mazatlan, and on the east to the middle of the State of Vera Cruz. It has also a great range in altitude, being found near the sea-level and as high as 7000 feet in the mountains at such places as Xucumanatlan in South-western Mexico and Chilasco in Guatemala.

The first specimens of this species described were obtained by Hedemann at Jalapa and Potrero in Vera Cruz¹, in the months of January and February. It has since been found to occur in many places in Southern Mexico, and on both sides of the mountain-range of Guatemala, as well as in the Cordillera itself.

A Venezuela specimen in Mr. Druce's collection was described in 1870 by Mr. Butler as *Achlyodes ozotes*³, and Van Patten's Costa-Rica specimens were referred to under the same name by Messrs. Butler and Druce⁴. These specimens, including the type, are all before us, and they differ in no way from the Mexican insects. Mr. Butler noticed a dark example from Bolivia in the British Museum. We also find dark specimens in our series, but they occur throughout the range of the species, and are not restricted to any particular locality.

The male genitalia are very similar to those of *E. busirus*, the tegumen has a short erect rod rising from the middle of the dorsal surface; the harpes are truncate, and from the middle of the outer edge is a short lobe. (See Tab. LXXXVII. fig. 10.)

DOBERES, gen. nov.

With much of the general outline of the wings of *Eantis*, in which genus *D. mexicanus* is placed by Mr. Watson, *Doberes* differs in several important particulars: the terminal joint of the palpi is longer and more prominent; the hind tibiæ instead of having the usual two pairs of spurs have only the terminal pair, the others being apparently entirely absent; moreover, the under surface of the tibiæ has small spines along its whole length intermingled with the scales, there is, too, a well-developed crest of hairs along the dorsal edge, but no definite tuft as in the males of *Eantis*; nor is there any tuft at the base of the secondaries on the upper surface, with a corresponding patch on the under surface of the primaries, as in *E. busirus*. The primaries have no costal fold.

The genus at present contains the single species mentioned below, which seems restricted in its range to the Mexican State of Vera Cruz.

1. *Doberes mexicanus*. (Tab. LXXXVII. fig. 11.)

Helias mexicana, Feld. Reise d. Nov., Lep. p. 531, t. 73. f. 20¹.

Achlyodes mexicana, Plötz, Jahrb. Nass. Ver. xxxvii. p. 16 (1884)².

Alis fuscis, pallide fulvo-atomatis; anticis macula ad medium cellulæ et duabus infra eam fusco-nigricantibus pallide fulvo circumcinctis, linea irregulari a margine interno medio ad medium costæ (ad cellulæ finem refracta) pallide fulva, altera submarginali ad apicem bifurcata ejusdem coloris; posticis maculis discalibus in serie irregulari transversa positæ, saturate fuscis, pallide fulvo circumcinctis, fasciæque per cellulam ejusdem modo limbata: subtus anticis pallide ochraceo-fuscis fere unicoloribus, posticis paulo obscurioribus maculis indistinctis pallidis; palpis ochraceo-albidis.

♀ mari similis, sed major, maculis alarum omnibus saturatioribus et multo magis distinctis.

Hab. MEXICO (*coll. Felder*¹), Orizaba (*Boucard*), Cordova (*Rümeli*).

A distinct species with no near allies, and apparently restricted in its range to the State of Vera Cruz. But few specimens have reached us, and most of these were formerly in the Saunders and Kaden Collections, and without definite locality. A male from Orizaba was taken by M. Boucard, and another was sent by Rümeli to Dr. Staudinger, most probably from Cordova, where the bulk of his collection was made.

The male genitalia have the tegumen ending in a single blunt truncate edge, near the base of the terminal piece, on either side, is an elongated sharp-pointed lobe; the scaphium is well developed and elongated, slightly granular at its end: the harpes separate into two portions towards the end—the upper segment turns inwards and ends in strong papillæ or teeth; the lower segment turns upwards and is strongly serrate at its end. (See Tab. LXXXVII. fig. 11.)

MASICES, gen. nov.

In this genus the hind tibiæ are like those of *Doberes mexicanus*, the proximal pair of spurs being absent and the under surface armed with a series of spines; there is no tibial tuft, and the dorsal edge carries a moderate crest of hairs. The outline of the wings is similar in the two genera, but the apex of the primaries is not quite so acute in *Masices*.

The palpi in the latter genus are not nearly so prominently porrect, the terminal joint being small and showing much as in *Eantis busirus*; the club of the antennæ is more elongated. The neurulation is practically the same as in *Doberes mexicanus*, but the radial of the secondaries is hardly visible, and the lower discocellular is straighter.

1. **Masices anticus.** (Tab. LXXXVII. figg. 12, 13, 14 ♂.)

Achlyodes anticus, Plötz, Jahrb. Nass. Ver. xxxvii. p. 16 (1884)¹.

Alis brunneis; anticis linea ab apice ad marginem internum bisectis, macula ad apicem in costa alteraque duplici in cellula nigricanti-brunneis, linea submarginali maculosa pallide brunnea; posticis margine externo, basi et lineis duabus transversis nigricanti-brunneis: subtus pallidiore brunneis; anticis area apicali linea maculosa nigricante ab apice bisecta; posticis saturate brunneo nebulosis; palpis et corpore toto saturate brunneis immaculatis.

Hab. MEXICO¹, Atoyac (*H. H. Smith*), Coatepec (*W. Schaus*).

A large handsome species, somewhat resembling *Eantis busirus* in general coloration, but differing materially in the shape of the wings and other structural characters, in which it approaches more closely to *Doberes mexicanus*.

The specimen described by Plötz appears to have been one of the forms found in Eastern Vera Cruz, in which the underside of the wings is nearly uniform. In Western Mexico and throughout Central America all the specimens we have examined have the apex of the primaries beneath of a rich tawny yellow, and seem separable from the darker insect. We describe them below as *Masices sobrinus*.

The male genitalia of *M. anticus* have the tegumen ending in a single blunt depressed point, at the base of the terminal piece, on either side, is a small lobe; the scaphium is well developed and granular along its lower surface: the harpes are divided towards the end—the upper portion carries a large erect lobe, which curves outwards and has a strongly serrate upper edge; the lower portion ends in a slightly upturned point, also serrate at its extremity. (See Tab. LXXXVII. fig. 14.)

2. **Masices sobrinus**, sp. n.

M. antico similis et affinis, sed anticis subtus ad apicem læte fulvis, linea nigra ab apice bisectis, distinguendus.

Hab. MEXICO, Omilteme in Guerrero (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Cerro Zunil, San Gerónimo (*Champion*); COSTA RICA, Caché (*Rogers*).

This species is closely allied to *M. anticus*, and perhaps hardly separable. The difference in the colour of the apex of the primaries beneath is, however, well defined, and seems associated with definite districts, and thus a separate name is justified.

Mr. Smith obtained us a good series of specimens from the Mexican State of Guerrero in the west, and we have several others from various parts of Central America. The female is a large insect, one of the largest of the American Hesperiidæ.

ANTIGONUS.

Antigonus, Hübner, Verz. bek. Schm. p. 108 (1816); Wats. P. Z. S. 1893, p. 57.

Chætoneura, Feld. Wien. ent. Monatschr. vi. p. 185 (1862).

Antigonus is restricted by Mr. Watson to two species—*A. nearchus*, the type, and *A. erosus*,—the only ones known to him. As these two insects differ in several points, and as the latter is representative of a group of species having characters in common, we now restrict the name *Antigonus* to *A. nearchus* alone, and assign *A. erosus* to Mr. Edwards's genus *Systasea*.

The antennæ of *A. nearchus* are peculiar in being abruptly bent backwards near the tip, the recurved point even crossing the club; the primaries are pointed, the outer margin slightly convex nearly to the anal angle, where there is a small rounded lobe; the costa has a small but obvious fold; the third median segment is short; the lower and middle discocellulars subequal, in a line, and slightly oblique; the secondaries have a prominent tooth near the apical angle; the third median segment is very short, the second subcostal segment not more than twice as long; the discocellulars and radial are very obscure; the terminal joint of the palpi is very short; the hind tibiæ have two pairs of spurs and a tuft at the proximal end.

The single species of the genus ranges nearly throughout the Neotropical region.

1. *Antigonus nearchus*. (Tab. LXXXVII. fig. 15.)

Hesperia nearchus, Latr. in Humb. & Bonpl. Obs. Zool. ii. p. 135, t. 43. ff. 3, 4¹; Enc. Méth. ix. p. 791².

Antigonus nearchus, Butl. & Druce, P. Z. S. 1874, p. 370³; Wats. P. Z. S. 1893, p. 57⁴.

Antigonus ustus, Geyer in Hübn. Zutr. ex. Schm. iv. p. 28, ff. 719, 720?⁵.

Achlyodes pausus, Westw. in Doubl. & Hew. Gen. Diurn. Lep. t. 80. f. 6⁶.

Chætoneura hippalus, Feld. Wien. ent. Monatschr. vi. p. 186⁷.

Chætoneura sataspes, Feld. ibid. p. 186⁸.

Alis saturate fuscis; anticis linea submarginali, macula ad medium marginis externi, angulo anali, macula a medio cellulæ ad margine interno (introrsum squamis albidis trimaculata) aliisque maculis ad costam nigricanti-fuscis; posticis margine externo lineisque discalibus undulatis angustis nigricanti-fuscis: subtus ferrugineo-fuscis, anticis lineis angustis nigricantibus transversis; posticis bitriente interna ochracecente, lineis undulatis fuscis notata; palpis subtus albis, segmento terminali nigricanti-fusco; thorace et abdomine infra albis; pedibus ochraceis, penicillo tibiali posticarum ochraceo.

♀ alis omnino pallidioribus et grisescentioribus, maculis et lineis omnibus magis obviis: subtus quoque multo pallidioribus.

Hab. MEXICO (*Sallé*), La Venta, Rio Papagaio, Acaguizotla (*H. H. Smith*), Atoyac (*H. H. Smith, Schumann*), San Lorenzo (*Trujillo*), Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), San José de Guatemala, San Gerónimo, Polochic Valley, Choctum (*F. D. G. & O. S.*), Panima (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*³); PANAMA, Bugaba (*Champion*), Chiriqui, Veraguas (*Arcé*), Lion Hill (*M'Leannan*).—SOUTH AMERICA, from Colombia¹ to South Brazil.

Antigonus nearchus is one of the commonest of the South-American Hesperiidæ, and has a wide range, extending from Southern Mexico to South Brazil and in altitude from the sea-level to a height of 3000 or 4000 feet in the mountains. It is an insect of the clearings and open glades of the forest rather than the denser growth of trees. It also frequents thinly-wooded plains. The females differ to some extent in colour, some being much paler than others.

The male genitalia have a tegumen ending in two points separated by a slight depression: the harpes have a lobe starting from the middle of the dorsal edge and ending in two prominent horn-like claws; the end of each harpe is rounded and slightly depressed; from the inner side of the middle of the ventral edge a long rod proceeds, which is directed forwards and slightly upwards, and reaches nearly to the end of the harpes. (See Tab. LXXXVII. fig. 15.)

SYSTASEA.

Lintneria, W. H. Edwards, Trans. Am. Ent. Soc. vi. pp. 57, 67 (March 1877) (nec Butler, Trans. Zool. Soc. ix. p. 620, Heterocera, 1 February, 1877).

Systasea (Butl. in litt.), W. H. Edwards, Canad. Ent. ix. p. 120 (June 1877).

Antigonus (partim), Watson, P. Z. S. 1893, p. 57.

This genus resembles *Antigonus* in having a projection or tooth at the apical angle of the secondaries, but it is more truncate and not acute; the neuration of the wings and the structure of the hind legs are similar. The antennæ, however, are not abruptly bent back near the point, but are evenly curved as in *Anastrus* &c. The palpi have a more prominent terminal joint, and the primaries are more truncate at the apex. Besides *S. pulverulenta* (Feld.) (= *S. zampa*, W. H. Edw.) the type of the genus, and the species mentioned below, *Antigonus excisus*, Mab., *A. incisus*, Mab., and *A. variegatus*, Mab., all belong here.

The range of *Systasea* extends over the greater part of the Neotropical region, from Southern Arizona to South Brazil and Paraguay.

1. *Systasea erosa*. (Tab. LXXXVII. fig. 16.)

Urbanus vetus erosus, Hübn. Samml. ex. Schm. i. t. 153¹.

Antigonus erosus, Wats. P. Z. S. 1893, p. 58².

Alis fuscis, griseo lanuginosis; anticis indistincte maculatis, punctis duabus aut tribus subapicalibus semihyalinis; posticis margine externo tantum anguste fusco: subtus ferrugineis, lineis angustis nigris undique irregulariter transfasciatis; anticis maculis subquadratis duabus infra ramum medianum primum lilacino-griseis; palpis subtus albicantibus; pedibus ferrugineis.

♀ alis multo pallidioribus, undique nigro transfasciatis et maculatis; anticis punctis quatuor subapicalibus duobus in cellula et maculis duabus ultra eam, una rami mediani secundi, utrinque semihyalinis.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Jalisco (*Schumann*), Rincon, Rio Papagaio, La Venta, Tierra Colorada, Acaguizotla, Dos Arroyos, Acapulco (*H. H. Smith*), Jalapa (*W. Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*, *Schumann*), Vera Cruz (*F. D. G.*), Teapa (*H. H. Smith*), Tabi (*F. D. G.*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Pacific coast, Chixoy and Polochic Valleys, Choctum, San Gerónimo (*F. D. G. & O. S.*), Zapote, Cubulco, Panima, Chiacam, Chacoj, Tocoj (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Matagalpa (*W. B. Richardson*), Chontales (*Belt*); PANAMA, David, Taboga I. (*Champion*).—SOUTH AMERICA, from Colombia to Paraguay.

A very common species throughout Tropical America, occurring in Western Mexico as far north as Mazatlan and in the State of Vera Cruz and thence southwards to Paraguay, its range in altitude extending from the sea-level to a height of 3000 or 4000 feet in the mountains.

The number of subapical transparent spots in the males of this species varies from two to four, and in some cases they are altogether wanting. The colour of the females, too, varies, some being darker and greyer, others more rufescent and paler.

The male genitalia have a forked tegumen and well-developed scaphium; the harpes (like those of *Antigonus nearchus*) have a horned lobe arising from the dorsal edge, but instead of the horns being equal there is a long one and a very short one from the base of the lobe; there is also a long flat lobe from the inner surface of the ventral edge—it is not straight, but bent inwards, and has a finely serrate edge. (See Tab. LXXXVII. fig. 16.)

2. *Systasea funebris*. (Tab. LXXXVII. figg. 17, 18, 19.)

Leucochitonea funebris, R. Feld. Verh. zool.-bot. Ges. Wien, 1869, p. 480¹.

Alis fuscis, fascia communi mediana purpureo tincta, introrsum fascia altera obscura limbata, extrorsum quoque irregulariter marginata, in anticis margine hoc maculas quatuor ad costam et duas discales semihyalinas continente, fascia indistincta lata submarginali; posticis fascia lanuginosa pallida submarginali et altera ultra eam angusta ejusdem coloris: subtus ochraceo-fuscis, lineis angustis fuscis indistincte fasciatis; palpis sordide albidis, segmento ultimo nigro.

♀ adhuc ignota.

Hab. MEXICO, Acaguizotla, Rincon, Rio Papagaio, La Venta, Tierra Colorada, Dos Arroyos, Venta de Zopilote (*H. H. Smith*), Cuernavaca (*mus. Felder*¹, *H. H. Smith*).

This species, of which we have a good series of male specimens from Western Mexico captured by Mr. Herbert Smith, may readily be distinguished from *S. erosa* by the much more conspicuous bands on the upper surface of the wings; on the primaries beneath there are no lilac spots below the first median branch. In the outline of the wings the two species are much alike, but *S. funebris* has the tooth at the apical angle of the wings not quite so prominent.

The primaries have a costal fold as in *S. erosa*, but the male genitalia are almost exactly like those of *S. corrosa*, which, again, has no costal fold.

Felder's type came from Cuernavaca¹, whence Mr. Smith sent us a specimen.

The male genitalia have a forked tegumen; each branch is humped on the dorsal edge, and ends in an abrupt hook; the harpes have a deep fissure on the dorsal edge, from the bottom of which a rod proceeds, which is first projected back and then turns abruptly and is carried beyond the rounded end of the harpe. (See Tab. LXXXVII. fig. 19.)

3. *Systasea corrosa*. (Tab. LXXXVII. figg. 20, 21.)

Antigonus corrosus, Mab. Pet. Nouv. Ent. ii. p. 198 (1878)¹.

Alis fuscis, purpureo tinctis; anticis fascia obliqua per cellulam nigra, macula costali quoque nigra, et ultra eam punctis tribus semihyalinis, punctis alteris duobus discalibus ejusdem coloris; posticis maculis duabus basalibus et altera subcostali nigris, linea angusta undulata discali nigra extrorsum pallide fusco limbata: subtus ferrugineo-fuscis, fusco fasciatis et maculatis.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Panima, Dueñas (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*), Chiriqui (*Ribbe*).—GUIANA¹.

M. Mabilles's type of this species came from Cayenne, but we have no specimens from that country. Our series is named from an example from Chiriqui lent us by Dr. Staudinger, determined by M. Mabilles to be his *Antigonus corrosus*.

The species is very like *S. funebris*, but has the dark band of the primaries very distinct, while those of the secondaries are abbreviated and do not cross the wing. The primaries of the male have no costal fold, so that the two species are readily distinguished.

The range of *S. corrosa* is much more extended than that of *S. funebris*. Commencing in Eastern Mexico, in the State of Vera Cruz, it is found throughout Central America as far as Panama, and also in South America.

The male genitalia are almost exactly like those of *S. funebris*.

4. *Systasea emorsa*. (Tab. LXXXVII. figg. 22, 23.)

Leucochitonea emorsa, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 479¹.

Ephyriades emorsa, Plötz, Jahrb. nass. Ver. xxxvii. p. 3 (1884)².

Alis albidis; anticis basi, apice et margine externo late fuscis cano atomatis et fusco indistincte notatis, area mediana lineis angustis irregularibus transfasciata, maculis tribus subapicalibus, tribus ad medium costæ, una cellulari et duabus ultra eam semihyalinis; posticis basi et margine externo fuscis, hujus dimidio anali cano atomato, area mediana transversim lineata: subtus albis extrorsum ochraceo tinctis, lineis transversis indistinctis; posticis macula conspicua rotunda anali nigra; palpis subtus albis.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Cuernavaca (*mus. Felder*¹), Chilpancingo (*H. H. Smith*).

Mr. Buchan-Hepburn obtained several specimens of this species in Chihuahua, all of them in poor condition; but a single male captured by Mr. Smith at Chilpancingo in August is uninjured. The latter agrees with Felder's description of the type in his collection, which came from Cuernavaca in Morelos¹, the bordering State to Guerrero.

5. *Systasea pulverulenta*. (Tab. LXXXVII. figg. 24, 25.)

Leucochitonea pulverulenta, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 478¹.

Hesperia zampa, W. H. Edw. Trans. Am. Ent. Soc. v. p. 207 (April 1876)².

Lintneria zampa, W. H. Edw. Trans. Am. Ent. Soc. vi. pp. 57, 67³.

Systasea zampa, W. H. Edw. List Diurn. Lep. N. Am. no. 579 (1884)⁴.

Alis rufescenti-brunneis, stria anteciliari albida, ciliis canis fusco interruptis; anticis basi, plaga ultra cellulam, apice et margine externo fusco nebulosis, macula duplici infra ramum medianum ad basin, fascia transversa irregulari per cellulam extrorsum indentata et punctis tribus ad apicem hyalinis; posticis fusco nebulosis, linea albida discali squamis fuscis subobscurata: subtus albicantibus, triente distali ochracea, bitriente basali fusco irregulariter nebulosa; palpis (articulo terminali nigro excepto) et corpore toto subtus albis, penicillo tibiali fulvo.

Hab. NORTH AMERICA, Arizona (*H. W. Henshaw*²).—MEXICO, near Durango city (*Becker*), Venta de Zopilote (*H. H. Smith*), Orizaba (*Hedemann*¹, *H. J. Elwes*), Rinconada (*W. Schaus*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Dueñas, San Gerónimo (*Champion*).

This species, though very differently coloured to *S. erosa* and *S. funebris*, seems strictly congeneric, and, like them, has a costal fold to the primaries.

Mr. Smith and Mr. Schaus captured several specimens of this species in Vera Cruz, and these agree with Felder's description, and also with an Arizona specimen sent us by Morrison with the name *H. zampa* attached to it.

DIÆUS, gen. nov.

A genus containing two or three small species, the affinities of which are rather obscure, but which may for the present be placed here.

The antennæ are much as in the neighbouring genera: the terminal joint of the palpi is rather prominent and porrect, more so than in *Onenses*, which follows; and the

clothing of the middle joint is more open and not so closely set. The primaries have no costal fold; the third median segment is very short; the lower and middle discocellulars subequal, the upper discocellular distinct; the third median and the second subcostal segments are subequal and short; the discocellulars and radial are feeble but distinct; the hind tibiæ have two pairs of spurs and a distinct tuft at the proximal end.

Two closely-allied species are all that we can at present refer to this genus: of these, the range of *D. lacæna* is given below; the other is *Ephyriades variegata* of Plötz, an insect of Southern and Eastern Brazil.

1. ***Diæus lacæna*.** (Tab. LXXXVII. fig. 26.)

Leucochitonea lacæna, Hew. Ex. Butt., *Leucochitonea*, f. 3¹.

Ephyriades lacæna, Plötz, Jahrb. nass. Ver. xxxvii. p. 3 (1884)².

Alis anticis ad basin ferrugineis, area mediana albida, maculis hyalinis nigro cinctis, duabus ad costam, una magna cellulari, duabus infra venam medianam bene separatis et duabus infra ramum medianum primum, area apicali fusco-nigricantibus, squamis canis irregulariter notatis, punctis quatuor subapicalibus in linea irregulari duobus majoribus ad costam et puncto parvo discali hyalinis; posticis ad basin fusco-nigricantibus, bitriente distali albicante ad marginem internum et ad angulum analem fusco variegatis maculis octo hyalinis, ea in cellula subquadrata et maxima, stria anteciliari fusca, ciliis albis fusco interruptis: subtus multo albicantioribus; anticis ad apicem tantum fuscis ochraceo atomatis; posticis ad angulum analem fusco variegatis.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*); COSTA RICA, San Francisco, Caché (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Veraguas (*Arcé*).—BRAZIL¹?

Hewitson's figure agrees with the Central-American form of this species rather than with the Brazilian, to which Plötz's name, *Ephyriades variegata*, is applicable. It is thus more than probable that Hewitson's specimen was wrongly ascribed to Brazil.

In Costa Rica and Chiriqui *D. lacæna* appears to be a common species, as we have many specimens from those countries. We have also a few from the Mexican State of Vera Cruz, but none from the intervening country.

D. lacæna differs from *D. variegatus* in having a much wider and whiter area in the middle of the primaries; the secondaries, too, are much whiter over the costal and apical areas.

The male genitalia have the tegumen with a single blunt point; the harpes are deeply cleft in the middle, and from the bottom of the fissure a ribbon-like lobe proceeds, and is curved upwards and then inwards. (See Tab. LXXXVII. fig. 26.)

ONENSES, gen. nov.

The remarkable species described by Felder as *Leucochitonea hyalophora* requires a separate genus for its reception. The outer margin of both wings is very uneven; the primaries have a distinct projection at the end of the second median branch and smaller ones at the ends of the upper radial and submedian, the latter forming a prominence at

the anal angle; the third median segment is very short, the lower discocellular considerably longer than the middle, the upper discocellular being quite distinct; there is no costal fold; the second median branch and the subcostal branch of the secondaries both carry projections on the outer margin; the cell is long and wide; the third median segment short; the discocellulars and radial distinct, the former placed at an obtuse angle to one another and not in a line. The antennæ have a regularly bent, long, terminal hook; the terminal joint of the palpi is short, and does not project much beyond the rather closely-set scales of the second joint; the hind tibiæ have two pairs of spurs and a tuft at the proximal end.

1. **Onenses hyalophora.** (Tab. LXXXVII. figg. 27, 28, 29.)

Leucochitonea hyalophora, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 477¹.

Ephyriades hyalophora, Plötz, Jahrb. nass. Ver. xxxvii. p. 2 (1884)².

Alis griseo-albidis ad basin nigro variis; anticis puncto ad cellulæ basin, plaga magna transversa per cellulam (marginibus suis valde irregularibus), altera subapicali trigona venis albidis quinque partita hyalinis, area ad cellulæ finem fulvescente, area marginali fusco atomosa; posticis puncto ad cellulæ basin et medialiter hyalinis, fascia (in disco refracta) fulva, fascia submarginali pallide fusca: subtus omnino pallidioribus; anticis ochraceo tinctis, margine interno albo; palpis subtus (præter apices) et corpore albis.

Hab. MEXICO, Jalapa (*W. Schaus*), Orizaba, Potrero (*Hedemann*¹), Atoyac (*Hedemann*¹, *H. H. Smith*, *Schumann*), Oaxaca (*Fenochio*); GUATEMALA, Polochic and Chixoy Valleys (*F. D. G. & O. S.*), Panima (*Champion*).

The types of this species described by Rudolph Felder were obtained by Hedemann at Atoyac and Potrero in Vera Cruz¹; we have since received several specimens from the former place, taken by Mr. H. H. Smith in April and May. Some years previously our collectors in Guatemala sent us a few examples both from the valley of the Polochic and the banks of the Chixoy below Cubulco, and Mr. Champion captured a single specimen in the hot valley of Panima near a stream. South of Guatemala it has not been noticed.

The male genitalia have a divided tegumen, each branch ending in a short hook; the scaphium is well developed, but not prominent; the harpes end in a strong, slightly recurved arm, with two teeth at the point, from the dorsal edge arises an erect club-like lobe, and there is a depressed lobe on the lower corner of the inner surface at the base. (See Tab. LXXXVII. fig. 29.)

GINDANES, gen. nov.

The members of this genus have a great general resemblance to some of *Pythonides*, especially those allied to *P. lugubris* (antea, p. 361), but there are structural differences which make it necessary to separate them generically. The antennæ have a longer terminal hook, the last joint of the palpi is shorter and less prominent, the hind tibiæ have a distinct tuft of hairs, besides other differences.

The primaries are truncate; the cell rather wide; the third median branch short;

the lower and middle discocellulars subequal; the upper discocellular distinct and comparatively long. The third median segment of the secondaries is short, about a fourth the length of the second subcostal segment; the discocellulars and radial are distinct but feeble. The hind tibiæ have two pairs of spurs and a long tuft.

Hesperia brebisson, Latr. (*Achlyodes brebissonii*, Kirby), of which *Pterygospidia phagæsia*, Hew., is a synonym, belongs to this genus.

1. **Gindanes panætius**, sp. n. (Tab. LXXXVII. figg. 30, 31.)

Alis pallide brunneis; anticis macula magna mediana nigricanti-brunnea, extrorsum maculis octo aut novem semihyalinis notata, punctis tribus subapicalibus semihyalinis et infra eos plaga nigricanti-brunnea, altera ejusdem coloris ad angulum analem introrsum atomis glaucescentibus marginata; posticis macula magna ad angulum apicalem et duabus ad costam nigricanti-brunneis, illa introrsum glauco-marginata, maculis alteris discalibus plerumque glaucescentibus, area ad marginem externum glaucescenti-alba: subtus anticis fuscis, maculis semihyalinis ut in pagina superiore; posticis ochraceis ad marginem internum glaucescentibus, maculis discalibus et margine externo fuscis; palpis et corpore subtus albicantibus.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*), Bugaba (*Champion*).

This species is closely allied to *G. brebissoni* (Latr.), and has similar markings on the upperside of the wings, but may readily be distinguished by the underside of the secondaries being ochraceous instead of blue, as in the allied form. *G. panætius* has not yet been found outside the limits of Central America, where it occurs from Nicaragua to the State of Panama. *G. brebissoni* has a wide range in the Amazons Valley.

The male genitalia have a short tegumen with a truncate end, which is curved downwards; the scaphium is well developed and straight; the harpes are simple lobes rounded at the ends and serrate, on the dorsal edge is a slight hump.

2. **Gindanes brontinus**, sp. n. (Tab. LXXXVII. figg. 32, 33, 34.)

Præcedenti similis; anticis medialiter fere immaculatis, margine externo late nigricanti-brunneo et introrsum lineis transversis semihyalinis limbato, macula subapicali unica subquadrata ad costam semihyalina; posticis area marginali vix glaucescente atomata: subtus fuscis fere unicoloribus, margine externo anticarum et angulo apicali posticarum vix obscurioribus, his punctis fuscis notatis; palpis et corpore subtus albicantibus.

Hab. NICARAGUA, Chontales (*Belt*).

We have four specimens of this species, all from Belt's collection, which also contained an example of *G. panætius*, so that both species are found together in Nicaragua. They may readily be distinguished from one another not only by the position of the dark marks of the primaries, but also by the secondaries being dusky in *G. brontinus*, ochraceous in *G. panætius*, and blue in *G. brebissoni*.

The male genitalia are like those of *G. panætius*, except that the tegumen is a little longer, and the upper edge of the dorsal hump of the harpes is produced forwards as a short lobe. (See Tab. LXXXVII. fig. 34.)

TIMOCHARES, gen. nov.

This and the following genera differ rather widely from those immediately preceding, and have a more general resemblance to *Anastrus* and its allies. The chief difference is the long porrect terminal joint of the palpi (most pronounced in *Anisochoria*) in *Timochares* and its allies as compared with the shorter joint in *Anastrus* and the genera associated with it.

Timochares trifasciatus differs from *Ebrietas* in having a much longer costal fold to the primaries of the male, the tip of this fold reaching to the end of the second subcostal branch, the cell is long and narrow, the lower and middle discocellulars oblique and in a line, the third median segment short, the second long and slightly arched. The discocellulars and radial of the secondaries are feeble, the third median segment very short; the second subcostal segment much longer. The palpi have a prominent porrect terminal joint, the hairy clothing of the second joint being also lengthened. The hind tibiæ have a distinct tuft at the proximal end.

Two species are all that we can at present refer to this genus, both of them occurring within our limits. Of these *T. trifasciatus* has a wide range over nearly the whole of Tropical America; the other, *T. ruptifascitus*, seems restricted to Mexico.

1. *Timochares trifasciatus*. (Tab. LXXXVIII. fig. 3.)

Leucochitonea trifasciata, Hew. Descr. Hesp. p. 50 (1868) ¹.

Antigonus trifasciatus, Plötz, Jahrb. Nass. Ver. xxxvii. p. 27 (1884) ².

Nisoniades hemula, Herr.-Sch. in Mus. Kaden (descr. nulla) ³.

Alis rufescenti-brunneis; anticis indistincte fulvo atomatis, fasciis duabus obliquis, margine externo plus minusve parallelis, obscure fuscis introrsum fulvo limbatis, una basali per cellulam, altera discali, fascia tertia submarginali maculosa; posticis saturate fulvis fusco trifasciatis: subtus fulvis, fasciis paginæ superioris fuscis indistincte notatis; palpis subtus albis, squamis fuscis interspersis, apice saturate fuscis; plica costali elongata ad finem rami subcostalis secundi extendente.

♀ mari similis, plica costali nulla.

Hab. MEXICO, San Blas, Sierra de Tepic (*W. B. Richardson*), Dos Arroyos, Acapulco, Atoyac (*H. H. Smith*); GUATEMALA, Polochic and Chisoy Valleys (*F. D. G. & O. S.*); HONDURAS (*Dyson*); NICARAGUA (*fide Plötz* ²); COSTA RICA, Caché (*Rogers*); PANAMA, Calobre (*Arcé*).—SOUTH AMERICA, from Colombia to Argentina.

The origin of Hewitson's type of this species was not stated ¹, but we now know that *T. trifasciatus* has a very wide range over nearly the whole of Tropical America, extending as far north as the State of Jalisco in Western Mexico and southwards to the Argentine Republic. We possess specimens from Colombia, Venezuela, Guiana, the Amazons Valley, Eastern Peru, Matto Grosso in Brazil (where Mr. H. H. Smith obtained several specimens), and Eastern Brazil (where Beseke found it, and one of whose examples, formerly in the Kaden collection, bears the MS. name of "*Nisoniades*

hemula"³). The most southern example we have was taken by the late E. W. White in the Sierra de Tortoral in the Argentine Republic.

In Mexico and Central America *T. trifasciatus* is found from the sea-level to a height of about 4000 feet in the mountains, and is a fairly common insect in the lowlands.

There is a pale and a dark form of this species, flying together at the same time of year in tolerably equal numbers. Hewitson described one of the former; we now figure a male of the latter.

The male genitalia have the tegumen ending in a wide transverse edge with a slight projection at each extremity; the scaphium is well developed and granular on the under surface towards the end: the harpes are asymmetrical; the right side projects on the ventral edge, which is serrate, and ends in an upturned lobe somewhat indefinitely, the dorsal edge undulates irregularly; the left side has an even ventral edge without serrations, from the base of the ventral edge a well-defined slightly spatulate lobe extends directly forwards. (See Tab. LXXXVIII. fig. 3.)

2. *Timochares ruptifasciatus*. (Tab. LXXXVIII. figg. 1, 2 ♂.)

Antigonus ruptifasciata, Plötz, Jahrb. nass. Ver. xxxvii. p. 27 (1884)¹.

T. trifasciato persimilis, sed anticis fasciis omnibus maculosis nec lineatis haud difficile distinguendus.

Hab. MEXICO, Cordova (*Rümeli*), Atoyac (*H. H. Smith*).

This apparently distinct species was described by Plötz from a specimen said to have come from South America¹. We only know it from the Mexican State of Vera Cruz, whence we have received several specimens.

The distinct oblique bands of the primaries of *T. trifasciatus* are in this species replaced by indistinct and rather irregular macular bands. In other respects the two forms do not appear to differ.

EBRIETAS, gen. nov.

In this genus the costal fold of the primaries of the male is much smaller than in *Timochares*, and does not extend so far as the end of the costal nervure; the discocellulars are more transverse, and the third median segment of the secondaries considerably longer, though shorter than the second subcostal segment. The hind tibiæ have a tuft and two pairs of spurs.

Of the species mentioned below *Ebrietas osyris* may be considered typical; *E. anacreon* and *E. ecliptica* agree in having the primaries rather less pointed; *E. (?) impressa* is aberrant, as the costal fold is not apparent and the wings are more rounded.

The genus, as a whole, ranges from the Mexican State of Vera Cruz to Southern Brazil; the South-American *Æthilla infanda*, Butl., belongs to it, and we have others unnamed in our collection.

1. **Ebrietas osyris.** (Tab. LXXXVIII. fig. 4.)

Achlyodes osyris, Staud. Verh. z.-b. Ges. Wien, 1875, p. 114¹; Ex. Schm. p. 302, t. 100².

Antigonus osyris, Plötz, Jahrb. nass. Ver. xxxvii. p. 23 (1884)³.

Alis piceo-nigris; anticis præcipue ad costam et ad marginem externum saturate lavandulo variegatis; posticis macula ejusdem coloris ad angulum analem: subtus piceo-fuscis; posticis dimidio anali fulvis, fusco bifasciatis; palpis et corpore subtus alis subtus concoloribus; anticis plica costali parva, tibiis cirratis et bis bicalcaratis.

♀ nobis adhuc ignota.

Hab. MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Panima (*Champion*), Polochic Valley (*F. D. G. & O. S.*); NICARAGUA, Matagalpa (*W. B. Richardson*); COSTA RICA, Caché (*Rogers*), Santa Clara Valley (*Zürcher*); PANAMA, Chiriqui (*Ribbe*¹), Veraguas (*Arcé*).—COLOMBIA; AMAZONS.

Dr. Staudinger described this species from specimens sent him by Herr Ribbe, and afterwards figured it in his work on Exotic Butterflies². Several years previously we captured some examples in Guatemala, and more recently we have received others from as far north as Teapa in the Mexican province of Tabasco, and also from places in Nicaragua, Costa Rica, Panama, and from the mainland of South America, where it occurs in the Amazons Valley. The latter differ slightly from the typical form in having the fulvous area of the secondaries beneath of a rather duller darker colour.

The male genitalia have the tegumen ending in a blunt depressed central hook, on either side of which is a point directed forwards; at the base of these projections in the middle line is a rounded lobe; the scaphium is well developed and granular on the under surface on either side towards the end; the harpes are symmetrical and end in a well-defined lobe, which is serrate along its dorsal edge as far as a distinct tooth situated about the middle, and beyond which on the proximal side the dorsal edge is smooth. (See Tab. LXXXVIII. fig. 4.)

2. **Ebrietas anacreon.** (Tab. LXXXVIII. figg. 5, 6, 7 ♂.)

Achlyodes (Helias?) anacreon, Staud. Verh. z.-b. Ges. Wien, 1875, p. 115¹.

Antigonus anacreon, Plötz, Jahrb. nass. Ver. xxxvii. p. 27 (1884)².

Alis piceo-nigris; anticis undique saturate lavandulo variegatis, macula magna ovali nigra ad angulum analem; posticis fasciis latis tribus ejusdem coloris, una basali, una per cellulam, tertia submarginali: subtus pallidioribus, anticis fere immaculatis, macula ad angulum analem sicut in pagina superiore; posticis trifasciatis; palpis saturate griseis, tibiis cirratis et bis bicalcaratis; plica costali parva.

♀ mari similis, plica costali nulla.

Hab. MEXICO, Sierra de Tepic (*W. B. Richardson*), Rincon in Guerrero (*H. H. Smith*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Oaxaca (*Fenochio*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, Yzabal and Polochic Valley (*F. D. G. & O. S.*), Panima, San Gerónimo, Zapote (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); COSTA RICA (*Van Patten*); PANAMA, Chiriqui (*Ribbe*¹), Volcan de Chiriqui (*Champion*), Veraguas

(*Arcé*), Line of Railway (*Ribbe*¹).—SOUTH AMERICA, from Colombia to Guiana and South Brazil¹.

Of this species we have a large series of specimens from nearly all the localities cited above, including a number from Atoyac in Vera Cruz, where Mr. Herbert Smith found it in profusion in the month of April. It is also not uncommon in Guatemala on both sides of the Cordillera up to an elevation of about 3000 feet.

The male genitalia have a tegumen like those of *E. osyris*, viz. a blunt depressed central hook with a point directed forwards on either side: the harpes are not quite symmetrical; the right side has a short terminal lobe pointed at its upper corner and serrate along the outer edge, there is a short lobe on the ventral edge near the end; the left side has a much narrower terminal lobe, which is also serrate, and the serrations continue to and surround another lobe on the dorsal edge, on the proximal side of which is a third directed inwards; on the inner surface of this harpe near the base is a rounded lobe arising from the ventral edge and carrying a small lobe about the middle. (See Tab. LXXXVIII. fig. 7.)

3. *Ebrietas ecliptica*. (Tab. LXXXVIII. figg. 8, 9, 10 ♂.)

Achlyodes ecliptica, Butl. Trans. Ent. Soc. 1877, p. 154¹.

A. anacreonti persimilis, area interna anticarum fere immaculata, tibiis posticis maris haud cirratis.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Panima (*Champion*), Choctum, Motagua Valley (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*), Santa Clara Valley (*Zürcher*); PANAMA, Chiriqui (*Ribbe, Arcé*), Bugaba (*Arcé*).—AMAZONS VALLEY¹.

This species is exceedingly like *E. anacreon*, and can only be distinguished by close inspection. On the surface of the wings the inner area of the primaries is nearly uniform, and shows little of the dark lavender markings of *E. anacreon*. The male can always be distinguished by the absence of the tibial tuft which is present in both the foregoing species. There is also a difference in the male genitalia, as described below.

E. ecliptica is by no means a common species, though widely distributed from Southern Mexico to the Amazons Valley. It was described by Dr. Butler¹ from specimens collected by Mr. Trail on the Rio Tapajos and the Rio Purus, considerable affluents of the Amazons from the south. We also have a specimen from the Amazons Valley.

Central-American specimens have long been in our possession, and these have been supplemented from time to time by others from various parts of our region. Its range in altitude extends to about 3000 feet.

The male genitalia have a tegumen like that of *E. anacreon*: the harpes are nearly symmetrical; the right side ends in a narrow round-ended lobe, serrate at the extremity of the upper edge, on which is a prominent tooth; the left side has the terminal lobe still narrower, but instead of a single tooth on the ventral edge there is a strongly

serrated projection, which extends inwards as a smooth lobe. (See Tab. LXXXVIII. fig. 10.)

4. **Ebrietas (?) impressa.** (Tab. LXXXVIII. figg. 11, 12 ♂.)

Achlyodes impressus, Mab. Le Nat. xi. p. 67, f. 2 (1889)¹.

Alis nigricantibus, vix violaceo tinctis; anticis ad basin et ad angulum apicalem pallidioribus, medialiter saturatioribus; posticis fere unicoloribus: subtus pallidior brunnescientioribus; palpis subtus grisescantibus.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹), Bugaba (*Champion*).

We have only seen two specimens of this species, one of them, Mons. Mabilles's type, kindly lent us by Dr. Staudinger.

The describer placed it in the genus *Achlyodes*, but it differs in having a tuft to the hind tibiæ of the male, absent in *Achlyodes*, and in the thicker, longer, terminal joint to the palpi. The last character induces us to place the species temporarily here, but it is not its final position.

CAMPTOPLEURA.

Camptopleura, Mabilles, Pet. Nouv. Ent. ii. p. 166 (1877); Wats. P. Z. S. 1893, p. 55.

This is a fairly well-marked genus, distinguished by its short, rounded, hollow wings. The venation of the wings is much as in the last genus, the discocellulars being transverse in the primaries, the third median segment very short, hardly longer than the lower discocellular: the costal fold is very distinct but short, reaching to the end of the costal nervure; at its termination the outline of the costa is angular. The third median segment of the secondaries is very short and the radial very feeble. The hind tibiæ have the proximal tuft and two pairs of spurs.

Camptopleura spreads from Southern Mexico to Southern Brazil, both *C. theramenes* and *C. thrasybulus* having this wide range. Three species occur within our limits—the two just mentioned and a third described below from Costa Rica, Panama, and the Amazons Valley.

1. **Camptopleura theramenes.** (Tab. LXXXVIII. figg. 13, 14, 15 ♂.)

Camptopleura theramenes, Mab. Pet. Nouv. Ent. ii. p. 166 (1877)¹; Wats. P. Z. S. 1893, p. 55².

Alis saturate brunneis, undique (præter margines externos) obscure hyacinthino variegatis: subtus fusco-brunneis fere unicoloribus, anticis ad marginem internum pallidioribus; palpis fuscis, pilis pallidis intermixtis; tibiis posticis cirratis et bis bicalcaratis.

♀ mari similis sed major, anticis plaga costali nulla neque tibiis posticis cirratis.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith, Schumann*); GUATEMALA, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*).—COLOMBIA; AMAZONS VALLEY; SOUTH BRAZIL.

Camptopleura theramenes was described by M. Mabilles from a specimen of unknown

origin, and was made the type of the genus *Camptopleura*. Though nowhere common the species has a very extended range in Tropical America. The most northern locality to which we have traced it is Atoyac, in the State of Vera Cruz, and from this point southwards we have specimens from distant intervals through Central America, also from Colombia, from several places in the valley of the Amazons, where Bates found it, from Matto Grosso, from Minas Geraes and the province of Rio Janeiro.

We can trace no difference in specimens from these distant places, the species being distinguished from the rest of its congeners by the peculiar brown colour of the wings and their fine mottling on the upper surface.

The male genitalia have a tegumen ending in two depressed blunt hooks (not quite symmetrical in the preparation), on each side of these is a point directed forwards: the harpes are asymmetrical; the right side ends in a lobe, with an irregular dorsal edge, finely serrate at the extremity; on the left side this lobe turns up at the end into a blunt serrate point, on the proximal side of which the dorsal edge carries one large and two small serrate teeth; nearer the base is a small smooth lobe directed forwards, and on the inner surface an irregular serrate lobe. (See Tab. LXXXVIII. fig. 15.)

2. *Camptopleura thrasybulus*.

Hesperia thrasybulus, Fabr. Ent. Syst. iii. p. 346¹.

Papilio thrasybulus, Donovan. Ins. Ind. t. 49. f. 4².

Antigonus thrasybulus, Plötz, Jahrb. nass. Ver. xxxvii. p. 27³.

Camptopleura thrasybulus, Wats. P. Z. S. 1893, p. 55⁴.

Alis piceo-nigris; anticis bitriente basali maculis ovalibus glauco-hyacinthinis, medialiter nigricantibus, ad marginem externum lineis duabus serratis submarginalibus notatis; posticis ad basin et ad marginem internum fasciis tribus interruptis glauco-hyacinthinis, una basali, altera per cellulam, tertia serrata discali: subtus saturate brunneis hyacinthino suffusis: anticis ad costam et ad marginem externum variegatis; posticis irregulariter fasciatis; anticis plica costali obvia; tibiis posticis cirratis; palpis saturate fuscis, pilis sparsis albidis intermixtis.

♀ mari similis, maculis omnibus magis obviis, plica costali maris nulla neque cirro tibiali.

Hab. MEXICO, Jalisco (*W. B. Richardson*), Acapulco, Rio Papagaio, Tierra Colorada and Dos Arroyos in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, Choctum (*F. D. G. & O. S.*), San Gerónimo (*Champion*), Dueñas (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu, Caché, Rio Sucio (*Rogers*); PANAMA, David (*Champion*), Chiriqui (*Ribbe*).—COLOMBIA; GUIANA; AMAZONS VALLEY and SOUTHERN BRAZIL.

This species is much more abundant than *C. theramenes*, though spread over nearly the same extent of country. In the north it ranges over the lowlands of Western Mexico as far as the State of Jalisco, and is also found in Yucatan, and in Guatemala reaches to an elevation of 5000 feet above sea-level. In South America it occurs in Colombia, in the Roraima Mountains of Guiana, in the Amazons Valley, where Bates met with it at Para and elsewhere, in Matto Grosso, and in the province of Rio Janeiro.

The male genitalia have the tegumen ending in a short depressed hook, from the base of which on either side a short pointed lobe arises directed forwards and upwards: the harpes are asymmetrical; the right side ends abruptly, and carries a short, strong, dentate process extending upwards; on the proximal side of this, on the dorsal edge, is an irregularly serrate lobe; the left side is considerably produced and rounded at the end, near which on the dorsal edge are a few serrations and then after an interval a series of strong recurved teeth.

3. **Camptopleura tisia**, sp. n. (Tab. LXXXVIII. fig. 16 ♂.)

C. thrasybulo similis, sed maculis fere omnibus integris nec vacuis; anticis maculis magis lineiformibus forsan distinguenda.

Hab. COSTA RICA, Caché (*Rogers*); PANAMA, Bugaba (*Champion*).—AMAZONS VALLEY.

This *Camptopleura* seems distinct from *C. thrasybulus*, the markings of the wings being more regularly linear and not so diffused as in that species; nearly all of them, too, are uniform in colour and not in rings, as in the allied form. The few specimens we possess were selected without much difficulty from a large series of *C. thrasybulus*.

DIPHORIDAS, gen. nov.

This genus, of which *D. phalænoides* (Hübner) may be considered the type, differs from *Camptopleura* in having rather longer primaries, the outer margin of which is much rounded; there is no costal fold, the discocellulars are rather more oblique. But the chief difference is in the palpi, the terminal joint of which is long, thick, and drooping. The legs present no differences, the hind tibiæ being tufted and bear two pairs of spurs.

The male genitalia have asymmetrical harpes, as is the case in *Camptopleura* and *Gorgythion*, and to some extent in all these allied genera.

D. phalænoides and *D. palpalis* are the only members of the genus we have as yet recognized. The former spreads over nearly the whole of Tropical America from Southern Mexico to Paraguay, and the range of the latter is included in the southern portion of this area.

1. **Diphoridas phalænoides**. (Tab. LXXXVIII. fig. 17 ♂.)

Urbanus vetus phalænoides, Hübner. Samml. ex. Schm. i. t. 152¹.

Helias phalænoides, Butl. & Druce, P. Z. S. 1874, p. 370².

Achlyodes phalænoides, Plötz, Jahrb. nass. Ver. xxxvii. p. 16³.

Alis piceo-nigris, griseo variegatis; anticis fascia transversa mediana nigricante macula costali ad apicem et lineolis transversis discalibus irregularibus notatis, area ad angulum analem et dimidio distali marginis interni nigricantibus; posticis fasciis irregularibus plus minusve margini externo parallelis, area ad angulum apicalem nigricante: subtus fuscis, irregulariter saturatiore fusco transfasciatis; palpis omnino saturate fuscis, tibiis posticis cirratis et bis bicalcaratis.

♀ mari similis, sed paulo major et alis plerumque brunnescentioribus.

Hab. MEXICO, Atoyac (*H. H. Smith*), San Lorenzo and Omealca near Cordova (*M. Trujillo*), Teapa (*H. H. Smith*); GUATEMALA, Choctum (*F. D. G. & O. S.*), Chiacam, Panima, Zapote (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Santa Clara Valley (*Zürcher*).—SOUTH AMERICA, from Colombia to Guiana, the Amazons Valley, Brazil, and Paraguay.

We have many specimens from Mexico and Guatemala of this common species, agreeing with Hübner's figure in having the secondaries beneath dark to the outer margin. The species spreads far beyond our region, having been found by Bates in the Amazons Valley, by Whitely in British Guiana, and by Herbert Smith at Chapada in Matto Grosso. We have also a specimen from Paraguay sent us by Mr. Perrens.

In altitude *D. phalænoides* reaches from near the sea-level to a height of upwards of 4000 feet in the mountains.

The male genitalia have a tegumen with a central depressed hook, at the base of which, one on either side, are two divergent points: the harpes are not symmetrical; the right side ends in a short lobe rounded at its upper corner; the left side is much more elongated and straighter, and the terminal portion finely serrate along the ventral surface. (See Tab. LXXXVIII. fig. 17.)

2. *Diphoridas palpalis*. (Tab. LXXXVIII. figg. 18, 19 ♂.)

Hesperia palpalis, Latr. Enc. Méth. ix. p. 791¹.

D. phalænoidei similis, sed posticis subtus dimidio anali albicantibus distinguendus.

Hab. PANAMA, Bugaba, David (*Champion*), Chiriqui (*Arcé*).—SOUTH AMERICA, Amazons Valley and Brazil to Entre Rios.

Latreille's description of this species is very meagre and hardly recognizable, but we use the name in deference to a named specimen kindly lent us by M. Mabille.

D. palpalis only differs from *D. phalænoides* in having the secondaries nearly white towards the anal angle beneath. Its range is included in that of its close ally, and though extending quite as far south does not seem to penetrate into our country beyond the State of Panama.

GORGYTHION, gen. nov.

Helias pyralina, Möschl., does not fit satisfactorily into any of the foregoing genera. The palpi are prominent, much as in *Camptopleura*, but not nearly so long and drooping as in *Diphoridas*, to which otherwise it has some general resemblance. The outer margin of the primaries is not so rounded, these wings being more pointed. There is no costal fold.

Capt. Watson placed *G. pyralina* in his second section of *Pythonides*, in which the hind tibiæ are said to have only the terminal pair of spurs. This observation is not borne out by our prepared specimens, as both pairs of spurs are distinctly visible.

The distribution of *Gorgythion*, as in the previous genera, is very wide, one or other of the species extending from North-western Mexico to Paraguay.

1. *Gorgythion pyralina*. (Tab. LXXXVIII. figg. 20, 21, 22 ♂.)

Helias pyralina, Hopff. in Mus. Berol.¹; Möschl. Verh. z.-b. Ges. Wien, 1876, p. 343, t. 4. f. 31².

Alis piceo-nigris, griseo-fusco variegatis; anticis maculis basalibus, alteris medianis in linea irregulari transversa positis, una subconspicua ad angulum analem, fusco-nigricantibus; punctis duobus ad angulum apicalem semihyalinis; posticis fasciis indistinctis maculosis fusco-nigris notatis: subtus fuscis; anticis punctis semihyalinis duobus sicut in pagina superiore, maculis indistinctis costalibus albicantibus, area ad marginem internum pallida; posticis griseo-fusco variegatis; palpis fuscis, pilis griseis intermixtis; tibiis posticis cirratis et bis bicalcaratis.

♀ mari similis, sed alis pallidioribus et maculis omnibus magis obviis.

Hab. MEXICO, Ventanas in Durango (*Forrer*), Jalapa (*W. Schaus*), Orizaba (*H. J. Elwes*), Atoyac in Vera Cruz, Acapulco, Acaguizotla, Dos Arroyos, Tierra Colorada, Rincon, Rio Papagaio, and La Venta, all in Guerrero (*H. H. Smith*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, San Gerónimo, Dueñas, Zapote (*Champion*); HONDURAS (*Dyson*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché, Irazu (*Rogers*); PANAMA, Bugaba (*Champion*).—SOUTH AMERICA generally, from Colombia to Guiana², the Amazons Valley, and Southern Brazil.

A very common species throughout our region and in the hotter parts of Tropical South America, occurring in abundance both in Western and Eastern Mexico. It is also found from the sea-level to a height of at least 5000 feet in the mountains.

Möschler described this species in one of his papers on the Butterfly-fauna of Surinam¹, and we have several specimens from the adjoining country of British Guiana. These latter differ in no way from our large series from Mexico and Central America.

The male genitalia have the tegumen ending in a single depressed point: the harpes are asymmetrical, the right side consisting of a simple short rounded lobe, near the base is a tuft of strong bristles directed outwards; the left side is much more complex, the terminal lobe carries two strong widely-separated points directed upwards, and above them again are two parallel strongly serrated surfaces; from near the base starts a lobe carrying strong bristles, and another shorter one from about the middle of the harpe. (See Tab. LXXXVIII. fig. 22.)

2. *Gorgythion begga*. (Tab. LXXXVIII. fig. 23.)

Hesperia begga, Prittw. Stett. ent. Zeit. 1868, p. 198¹.

Achlyodes begga, Plötz, Jahrb. nass. Ver. xxxvii. p. 18².

Hesperia? alcandra, Mab. Petit Nouv. Ent. ii. p. 229 (1878)³.

G. pyralinae persimilis, supra vix distinguenda; alis posticis ad angulum apicalem forsan nigricantioribus: subtus posticis dimidio anali plus minusve albidis.

Hab. PANAMA, Volcan de Chiriqui, David (*Champion*), Chiriqui (*Ribbe*).—SOUTH AMERICA generally, from Colombia to Southern Brazil^{1 3} and Paraguay.

BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1896.

G. begga is very closely allied to *G. pyralina*, and in some places the two forms seem to blend, the chief distinctive character of the white terminal portion of the secondaries beneath almost disappearing. When this character is fully developed the two insects can readily be distinguished.

Though widely distributed in South America, *G. begga* only just enters our region, penetrating as far as Chiriqui, where both Herr Ribbe and Mr. Champion obtained specimens.

Herr Semper sent us named specimens from Brazil of this species, determined from Plötz's drawing, and these agree with an example compared with M. Mabilles type of *H. alcandra* kindly lent us for examination.

ANISOCHORIA.

Anisochoria, Mabilles, Bull. Soc. Ent. Fr. sér. 5, vi. p. cci (1876); Wats. P. Z. S. 1893, p. 59.

M. Mabilles founded this genus in 1876 upon his *A. polysticta* and *A. oligosticta*, both from Colombia, and afterwards added to it other species, including his *A. albida*, all of which appear to be strictly congeneric. In coloration, however, the last-mentioned species approaches *Helias albiplaga*, Feld., and *Antigonus ægides*, Herr.-Sch., also included in *Anisochoria* by Capt. Watson*, but which, as will be seen below, we think it advisable to separate therefrom.

Anisochoria, as thus restricted, is distinguished by its long, porrect, very conspicuous palpi, the second joint of which is densely clothed with long hairs, beyond which the slightly depressed terminal joint projects. The costa of the primaries is evenly curved and the apex distinctly truncate, the rest of the outer margin and the inner margin nearly straight; there is no costal fold; the third median segment is short, the second segment curved; the discocellulars oblique, the lower shorter than the middle. The secondaries have a rather pronounced apical angle, the costa being nearly straight towards this angle; the outer margin is rounded and rather prominent in the middle, the discocellulars and radial very faint; the third median segment is short, the second subcostal segment long, about equal to the second median segment. The hind tibiae have two pairs of spurs and a tuft. The harpes of the male genitalia are very nearly symmetrical.

The only species of *Anisochoria* found within our limits is *A. polysticta*, but there are many in Tropical South America, of which very few have been described. These range from Colombia to Guiana, South Brazil, and Paraguay.

* Capt. Watson seems to have taken his characters of the genus from *Helias albiplaga*, and not from the typical species.

1. *Anisochoria polysticta*. (Tab. LXXXVIII. figg. 24, 25, 26 ♂.)

Anisochoria polysticta, Mab. Bull. Soc. Ent. Fr. 1876, p. cci¹.

Achlyodes lemur, Möschl. Verh. z.-b. Ges. Wien, 1878, p. 228².

Alis fuliginoso-nigris, ciliis pallidioribus, nigro indistincte interruptis; anticis fascia transversa maculosa ab angulo anali ad costam extensa, maculis tribus discalibus et tribus approximatis in linea recta ad angulum apicalem albis; maculis submarginalibus indistinctis fusco circumcinctis; posticis fere unicoloribus: subtus anticis ut supra albo maculatis, ad apicem et ad marginem externum griseo irroratis; posticis griseo marmoratis, maculis irregularibus nigris medialiter notatis et plaga elongata fundi coloris bisecta ad costam castanea nigro atomata; palpis subtus griseis, tibiis posticis cirratis et bis bicalcaratis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panama (*Champion*); PANAMA, Chiriqui² (*Ribbe*), David, Bugaba (*Champion*).—COLOMBIA^{1 2}; VENEZUELA; GUIANA.

This species was described by M. Mabilie from Colombian specimens in his own collection, and we have before us a named example from Chiriqui lent us by Dr. Staudinger. The latter agrees with our large series from many parts of Central America, where it is abundant from the Mexican State of Vera Cruz to Panama, and has been traced beyond Colombia to Venezuela and Guiana, whence we also have specimens.

In 1875 Möschler redescribed the species as *A. lemur* from Chiriqui and Colombian specimens, one of which has also been kindly lent us by Dr. Staudinger, and we find it to agree with *A. polysticta* in every respect*. As long ago as 1862 we obtained a specimen of *A. polysticta* in the Polochic Valley in Guatemala, and Mr. Champion captured others in the same district. Mr. Herbert Smith took many specimens at Atoyac in the foot-hills of Eastern Vera Cruz in the month of May. It has not yet been traced in Nicaragua and Costa Rica, but was taken in some numbers by Dr. Staudinger's collectors in Chiriqui, and a few by Mr. Champion at David. It would thus seem to be a species restricted to the low-lying hotter districts of the countries it inhabits.

The male genitalia have a forked tegumen, the points wide apart, and each furnished with an appendiculate point. The scaphium is well developed. The harpes are short, truncate, and divided at the end into two lobes: the upper one ends in an erect point bent at the extremity outwards; the lower is rounded, and has a projecting tooth near the end of the inner surface; there is also a large longitudinal lobe on the inner surface of each harpe covered with tooth-like papillæ. (See Tab. LXXXVIII. fig. 26.)

* Capt. Watson places *A. lemur* as a distinct species with *A. sublimbata*, Mab., as a synonym, and *A. polysticta*, Mab., as a synonym of *A. pedalioidina* (Butler); but with authentic examples of all these insects before us we can affirm that *A. pedalioidina*, *A. sublimbata*, and *A. polysticta* are all distinct. *A. lemur* falling as a synonym under the last name.

THEAGENES, gen. nov.

Similar to *Anisochoria*, and with similar long porrect palpi, the terminal joint of which is hardly so much depressed. The primaries differ in having the costa concave towards the apex, in the apex being more truncate and even slightly concave towards the extreme tip, the lower portion of the outer margin and the inner margin are also concave; there is also a distinct costal fold. The secondaries have a more rounded apical angle, and the anal angle is rather more prominent. The male genitalia have distinctly asymmetrical harpes.

Two species belong to this genus, one of them being the well-known *Helias albiplaga*, Felder, having a range extending from Colombia to Bolivia; the other is the nearly allied *Antigonus ægides*, Herr.-Sch., a species of wide range in Southern Mexico and Central America, but which does not pass outside our limits.

1. **Theagenes ægides.** (*Eropus ægides**, Tab. LXXXVIII. figg. 27, 28, 29 ♂.)
Antigonus ægides, Herr.-Sch. Prodr. iii. p. 49 (1869)¹; Plötz, Jahrb. nass. Ver. xxxvii. p. 23².

Alis fuscis, anticis medialiter griseo atomatis et lineis indistinctis angustis transversim fasciatis, puncto unico ad apicem hyalino; posticis plaga magna mediana alba notatis: subtus anticis plaga magna ochracea, basi, costa (anguste) et apice fuscis, hoc griseo irrorato, puncto hyalino ut in pagina superiore; posticis undique fusco lineatim marmoratis, ad medium alæ fere albis; palpis subtus griseo-albidis, tibiis posticis cirratis et bis bicarinatis.

♀ mari similis, anticis plica costali nulla nec tibiis posticis cirratis.

Hab. MEXICO, Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes*), Atoyac, Vera Cruz (*H. H. Smith*); GUATEMALA², Polochic and Chixoy Valleys, Dueñas (*F. D. G. & O. S.*), Senahu, San Gerónimo, Zapoté (*Champion*), Volcan de Santa Maria (*W. B. Richardson*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé*), Volcan de Chiriqui, Bugaba (*Champion*).

This species is a close ally of *T. albiplaga* (Feld.), but may be distinguished on the upperside by the larger size of the conspicuous white patch on the middle of the secondaries, and on the underside by the more linear and even mottling of those wings, the lighter portions of which reach from the middle of the wing nearly to the costa. In *T. albiplaga* there is a subtriangular white patch definitely separated from the costa by a wide dark border.

T. ægides was very imperfectly described by Herrich-Schäffer, but was discriminated from *T. albiplaga* by Plötz, who assigned it to Guatemala: and this determination of Herrich-Schäffer's name we accept.

The range of *T. ægides* is spread over the whole of Central America from the Line of the Panama Railway northward. It occurs also in the Mexican State of Vera Cruz on the eastern slope of the mountains.

* Since our Plate was drawn and lettered, Mons. Simon has used the name *Eropus* for a genus of Nitidulidæ (Ann. Soc. Ent. Fr. 1895, p. 162).

Its range in altitude extends from the sea-level to a height of as much as 5000 feet in the mountains of Guatemala.

The male genitalia have a tegumen ending in a single strong central point, at the base of which on either side is a short tooth; the scaphium is feebly developed; the right harpe is simple, and ends in a stout slightly upturned point: the left harpe is much more complex, one portion of the extremity is thin and bent inwards, its outer edge is serrate and carries strong bristles, at the commencement of this projection is a rounded lobe; from nearer the base a strong process starts, which is bent forwards into a lobe, all the ventral edge of which is armed with strong teeth. (See Tab. LXXXVIII. fig. 29.)

STAPHYLUS, gen. nov.

There are a number of South- and Central-American species of Hesperiidæ allied to *Helias ascalaphus*, Staudinger, the position of which is very obscure. Little difference, and in some cases practically none at all, can be traced in the outward form or in the coloration of the wings between many of these species; and it is only by following up some very slight divergence in the length of the terminal joint of the palpi or their clothing beneath, or other minute point, and by making dissections to show the structure of the male genitalia that their real status is proved. Having done this, it appears certain that a number of true species exist whose outward form gives scarcely any clue to their distinction.

In the arrangement of the species which follows, though we have been guided almost entirely by the similarity or dissimilarity of the male genitalia, we have also used, as far as we possibly can, such external characters as can be definitely described.

It may, at some future time, be necessary to divide this genus as we now understand it, but before doing so a number of South-American species will have to be thoroughly examined, many of which do not fall satisfactorily into any of the sections into which we temporarily subdivide the species of our region.

Taking *S. ascalaphus* as the type, the genus may be defined by the following characters, none of which taken separately are characteristic:—

The antennæ have a distinct club which is drawn to a somewhat blunt point, the swollen portion being on one side, so that the opposite side is slightly concave; the primaries have a distinct costal fold, the discocellulars are nearly transverse and subequal, the third median segment short; the secondaries have a marginal indentation (not present in most of the other species) between the median and subcostal nervures. The palpi have a short porrect terminal joint projecting moderately beyond the somewhat long clothing of the basal segments of the palpi. The hind tibiæ have two pairs of spurs, but no tibial tuft.

Staphylus differs from *Pholisora* in having less prominent palpi and sharper antennæ.

a. *S. CYLINDUS* group.1. *Staphylus cylindus*, sp. n. (Tab. LXXXIX. figg. 1-3.)

Alis fuscis, squamis sparsis obscure ochraceis notatis; anticis, plica costali obvia, maculis tribus subapicalibus, tribus alteris discalibus inter ramos medianos semihyalinis et nigricanti-fusco limbatis; posticis fere unicoloribus, fasciis duabus indistinctis vix pallidioribus margine externo parallelis: subtus fere unicoloribus; anticis area ad marginem externum paullo pallidiore et fulvescentiore; palpis subtus fuscis, squamis fulvis intermixtis; pedibus et corpore toto fuscis.

Hab. MEXICO, Orizaba (*F. D. G. & H. J. E.*), Coatepec and Jalapa (*W. Schaus*); COSTA RICA, Irazu and Rio Sucio (*Rogers*).

This species is a close ally of *Staphylus cyclops* (Staud.), but differs in the colour of the marginal portion of the primaries beneath, which are dark and only slightly more fulvous than the rest of wing, instead of being distinctly ochre-yellow. In colour it resembles *Achlyodes simplex* (*antèa*, p. 396), but differs generically in several points, the primaries having a very distinct costal fold, the outer margin more convex, the secondaries wider and more convex, &c.

The range of *Staphylus cylindus* probably extends over nearly the whole of Central America, from the eastern slope of the mountains of Vera Cruz southwards. We have many specimens from Costa Rica, but none from any more southern point. In Colombia *Staphylus cyclops* perhaps takes its place, a species of which we have not as yet seen any examples from our country, those attributed to it belonging either to *Achlyodes simplex* or *A. cyrna* (Mab.)*.

The male genitalia have a long, rather slender, blunt, slightly depressed tegumen, with a short lobe on either side at the base: the harpes are divided into two lobes of nearly equal width; the lower one is the longer and ends in a blunt point at the upper corner; the upper and shorter lobe is rounded at the extremity. (See Tab. LXXXIX. fig. 3.)

b. *S. CUPREICEPS* group.2. *Staphylus cupreiceps*. (Tab. LXXXIX. figg. 4-6.)

Antigonus cupreiceps, Mab. Bull. Soc. Ent. Belg. xxxv. p. lxiii¹.

Alis fuliginoso-nigris; anticis fascia submarginali paulo pallidiore; posticis fasciis maculosis indistincte notatis: subtus fuscis, fasciis omnibus ut supra sed paulo magis obviis; palpis subtus griseis, supra cum area inter oculos et prothorace supra aurèo-aurantiacis.

Hab. MEXICO, Atoyac in Vera Cruz, Omilteme in Guerrero (*H. H. Smith*); GUATEMALA, Volcan de Sta. Maria (*W. B. Richardson*); HONDURAS (*mus. Mabilles*¹), San Pedro (*G. M. Whitely*); PANAMA (*Ribbe, in mus. Staudinger*).—VENEZUELA; AMAZONS VALLEY; BOLIVIA; EASTERN BRAZIL.

This species was described from a specimen from Honduras, which, through

* Mons. Mabilles has recently sent us a specimen of his *Achlyodes cyrna* (Bull. Soc. Ent. Fr. 1895, p. lvi Feb. 27), and we find it identical with our *A. fasciata*, which was described a few weeks later, and the latter name therefore becomes a synonym of *A. cyrna*.

M. Mabilles kindness, we have seen, and find it agrees with a good series we possess coming from a wide area extending from Southern Mexico to Rio Janeiro. In the colour of the palpi above and of the head and prothorax this species resembles *Helias aurocapilla*, Staud., but it is a much larger insect, and has the male genitalia differently formed, as will be seen by comparing the figures. The two insects seem to be strictly congeneric, having similar palpi, and the costal fold of the primaries and the neuration much alike.

The male genitalia have a ventral hook with two short rounded lobes at the base—one on either side: the harpes are split into two lobes; the upper one is small and rounded at the end; the lower one much wider and expanded towards the outer margin, with two rounded angles, the lower one projecting more than the upper. (See Tab. LXXXIX. fig. 6.)

3. *Staphylus aurocapilla*. (Tab. LXXXIX. figg. 9–11.)

Helias aurocapilla, Staud. Verh. z.-b. Ges. Wien, xxv. p. 117 (1876)¹.

Achlyodes vulgata, Möschl. Verh. z.-b. Ges. Wien, xxviii. p. 224 (1878)².

Alis fuliginoso-nigris, squamis paucis ochraceis notatis, fasciis valde indistinctis formantibus: palpis, capite medialiter et prothorace supra aurantiacis: subtus alis ut supra; palpis subtus fusco-albidis, flavido vix tinctis.

Hab. MEXICO, Misantla (*F. D. G.*), Rinconada (*W. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Zapote (*Champion*).—COLOMBIA²; TRINIDAD; LOWER AMAZONS; ARGENTINA¹.

A specimen submitted to M. Mabilles was returned to us named *H. aurocapilla*, Staud., with the description of which it no doubt agrees. But we find that Möschler's name *A. vulgata* is also applicable to it, the type lent us by Dr. Staudinger agreeing with our series from Mexico and Central America. Dr. Staudinger's title has a slight priority.

Staphylus aurocapilla is readily distinguishable from *S. ascalaphus*, which it resembles in colour and size, by the orange colour of the upperside of the palpi, head, and prothorax. In this respect it is like *S. cupreiceps* and *S. ceos*, but it differs from the former in its smaller size and distinct male genitalia, and from the latter by the colour of the palpi beneath, which are of dusky yellowish white, instead of pure white as in *S. ceos*, and also in the form of the genitalia.

The male genitalia have a long single pointed tegumen, with a tuft of hairs arising from the base of the dorsal edge: the harpes are split into two lobes, which overlap at their bases; the upper lobe ends in a close-set bunch of strong bristles, and at the base, where it overlaps the lower lobe, the lower angle carries a short tooth; the lower lobe is evenly rounded at the end and covered with long fine hairs. (See Tab. LXXXIX. fig. 11.)

4. *Staphylus ceos*. (Tab. LXXXIX. figg. 7, 8.)

Pholisora ceos, W. H. Edw. Papilio, ii. p. 140 (1882)¹.

S. auricapillæ persimilis, et palpis supra, capite summo et prothorace eodem modo picturatis; palpis longioribus, subtus pure albis, alis anticis maculis duabus (♂) (aut tribus ♀) subapicalibus semihyalinis distinguenda.

Hab. NORTH AMERICA, Arizona¹.—MEXICO, Northern Sonora (*H. K. Morrison*), near Durango city (*Becker*).

We have several of Morrison's specimens from Fort Grant, Arizona, and the frontier between that State and Sonora, as well as one from near Durango. These all differ from *S. aurocapilla* in having longer palpi, the colour of which is pure white beneath, and in the primaries having two hyaline spots in the male and three in the female near the apex.

The male of *S. aurocapilla* has no such spots, though the female possesses three very small ones.

The species was described by Mr. W. H. Edwards in 1882 from Morrison's specimens.

The male genitalia have a long slender tegumen: the harpes are cleft into two lobes; the upper one simply rounded with a nearly straight outer margin, and beset on the edge with short bristles; the lower lobe slightly overlaps the upper one at the base, has a rounded end and a depression on the dorsal edge, the outer margin carries bristles, and the sides are hairy. (See Tab. LXXXIX. fig. 8.)

c. *S. ASCALAPHUS* group. (Typical.)

5. *Staphylus ascalaphus*. (Tab. LXXXIX. figg. 12–14 ♂, 15 ♀.)

Helias ascalaphus, Staud. Verh. z.-b. Ges. Wien, xxv. p. 116 (1876)¹.

Alis nigricanti-fuscis fere unicoloribus; anticis fascia submarginali maculosa vix pallidiore punctis duobus subapicalibus hyalinis; posticis margine externo undulari inter venam medianam et venam subcostalem maxime exciso: subtus unicoloribus, squamis sparsis ochraceis notatis; palpis subtus griseo-ochraceis, supra squamis griseis et nigris intermixtis.

♀. Alis pallidioribus, fasciis duabus transversis obscuris notatis, una discali, altera cellulari, ambabus supra posticas indistincte productis; anticis punctis duobus aut tribus subapicalibus hyalinis notatis.

Hab. MEXICO, Sierra Madre de Tepic (*W. B. Richardson*), Jalisco (*Schumann*), Misantla, Jalapa, Vera Cruz (*F. D. G.*), Coatepec, Rinconada, Paso de San Juan (*W. Schaus*), Cordova (*Rümelin*), Orizaba (*H. J. Elwes*), Atoyac (*H. H. Smith, Schumann*), Acapulco, Tierra Colorada, Rincon, La Venta, Venta de Zopilote, Rio Papagayo, Dos Arroyos, Teapa (*H. H. Smith*), Valladolid in Yucatan (*G. F. Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Dueñas, Zapote, San Gerónimo, Panima, Chiacam (*Champion*), Volcan de Santa Maria (*W. B. Richardson*); NICARAGUA, Matagalpa (*W. B. Richardson*), Chontales (*Belt*); COSTA RICA, Caché, Irazu (*Rogers*); PANAMA, Volcan de Chiriqui¹, Panama (*Ribbe*), Taboga I. (*J. J. Walker*).—COLOMBIA; VENEZUELA; TRINIDAD.

Dr. Staudinger described this species from specimens sent him by Ribbe from Panama¹, one of which is before us. It is a very common insect all over Central America and Southern Mexico up to an elevation of 4000 or 5000 feet above sea-level. *S. hayhursti* (Edw.) is a very nearly allied species, differing apparently in its paler more decidedly mottled wings, and especially by the purer white of the palpi beneath.

The male genitalia have a peculiar tegumen, which is slender, bent downwards in the middle, and then curving outwards ends in a sharp slender point; on the superior angle of the bend a tuft of curved hairs stands: the harpes are simple lobes slightly constricted in the middle, and ending in short, thick-set, upturned bristles. (See Tab. LXXXIX. fig. 14.)

In outward appearance *S. ascalaphus* is very like the North-American *S. hayhursti*, both having a similarly shaped outer margin to the secondaries. *S. hayhursti* is a little paler in colour, the faint markings of the wings rather more plainly shown, and the palpi purer white beneath. The genitalia of *S. hayhursti* resemble those of *S. ascalaphus* so far as the peculiar shape of the tegumen is concerned; but the upper lobe of the harpes carries a long recurved horn, the lower lobe projecting slightly with a rounded end. (See Tab. LXXXIX. fig. 16.)

6. *Staphylus aztecus*. (Tab. LXXXIX. figg. 17 ♂, 18 ♀.)

Pholisora azteca, Scudder, Rep. Peab. Ac. Sc. 1871, p. 72¹.

S. ascalapho similis, sed alis omnibus omnino pallidioribus; anticis punctis tribus hyalinis subapicalibus (medio basi proximo); posticis margine externo fere integro; palpis subtus albis.

Hab. MEXICO, Rinconada (*W. Schaus*), Atoyac, Teapa, Dos Arroyos (*H. H. Smith*), Tehuantepec (*Scudder*¹).

Our specimens of this species from both sides of the mountains of Southern Mexico agree fairly with Mr. Scudder's description of his *Pholisora azteca*; but we cannot be certain of our identification, as neither the sex of the type or the colour of the palpi beneath is stated. Mr. Scudder's comparison of his *P. azteca* with *Hesperia hayhursti* of Edwards guides our determination, as the series before us certainly indicates a close alliance with that species, the chief difference being the even margin of the secondaries of *S. aztecus* as we understand it.

The male genitalia do not differ from those of *S. ascalaphus*, so that the two species can be separated on external characters alone.

d. *S. EVIPPE* group.

7. *Staphylus evippe*, sp. n. (Tab. LXXXIX. figg. 19, 20 ♂.)

Alis saturate brunneo-fuscis, fere unicoloribus; anticis punctis duobus (inferiore obsoleto) subapicalibus hyalinis; palpis subtus plerumque albis, pilis sparsis fuscis intermixtis.

♀ mari similis, punctis anticarum hyalinis majoribus, plica costali nulla.

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Hab. MEXICO, Cuernavaca (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*), Chixoy Valley (*F. D. G. & O. S.*).

Externally this species closely resembles *S. giselus*, but differs in having the palpi beneath much whiter. The male has the hyaline spots almost obsolete, the lower of the two being scarcely visible; in the female both spots are apparent.

The male genitalia have a short lobe on either side of the base of the terminal portion of the tegumen; the harpes spread transversely at the end, the outer edge being irregular but strongly serrate, there is a deep sinus on the dorsal edge. (See Tab. LXXXIX. fig. 20.) Compare the figure with that of the corresponding parts of *S. giselus* (fig. 26).

8. **Staphylus orsines**, sp. n. (Tab. LXXXIX. figg. 21, 22 ♂.)

S. evippe similis, alis nigricantioribus unicoloribus, punctis anticarum hyalinis nullis; palpis elongatis porrectis: subtus albidis; anticis ad apicem magis acutis, margine externo rectiore.

Hab. MEXICO, Lake Chapala (*W. B. Richardson*).

A single male specimen is all we have seen of this species, which closely resembles *S. evippe* in general appearance. The male genitalia, however, differ sufficiently to prove that the two insects are really distinct, as will be apparent on comparing the figures.

The male genitalia resemble those of *S. evippe*, but the terminal portion of the tegumen is longer and more evenly curved; the harpes spread transversely at the upper corner of the outer margin and the edge itself is serrate, but there is no sinus on the ventral edge. (See Tab. LXXXIX. fig. 22.)

e. S. GISELUS group.

9. **Staphylus brennus**. (Tab. LXXXIX. fig. 23 ♂.)

Nisoniades brennus, Mab. in litt.

Alis fusco-brunneis, fere immaculatis, sparsim squamis fulvis aspersis; anticis fascia submarginali vix pallidior, punctis hyalinis nullis; palpis subtus squamis nigricantibus et fulvis intermixtis sat longis vestitis.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet, David (*Champion*), Chiriqui (*Ribbe, in mus. Staudinger*).

Dr. Staudinger has sent us two specimens from Chiriqui with this name in the handwriting of M. Mabilie attached to them. We have a few others of Mr. Champion's collecting from the same district.

S. brennus is closely allied to *S. giselus*, and has the palpi similarly coloured, but the primaries are devoid of hyaline spots always present in *S. giselus*. The male genitalia, too, differ slightly, as will be seen on comparing the figures: they have harpes

terminating in a rounded lobe, with a mesial ridge extending part of its length, at the base of which, on the dorsal edge, is a fissure overlapped by a rounded lobe projecting backwards. (See Tab. LXXXIX. fig. 23.)

10. **Staphylus giselus.** (Tab. LXXXIX. figg. 24-26 ♂.)

Hesperia giselus, Mab. Bull. Soc. Ent. Belg. xxvii p. lxxv (1883) ¹.

Alis fusco-nigricantibus, fasciis valde indistinctis nigris vix adumbratis; anticis punctis duobus subapicalibus nigro circumcinctis hyalinis; palpis subtus squamis nigricantibus et fulvis intermixtis sat longis vestitis.

Hab. MEXICO, Sierra de las Aguas Escondidas, Omilteme (*H. H. Smith*), Orizaba (*H. J. Elwes*); GUATEMALA, San Gerónimo, Panima, Chilasco, Dueñas (*Champion*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).—COLOMBIA ¹.

A Chiriqui specimen lent us by Dr. Staudinger, and named by M. Mabilie, agrees with the description, having no doubt been compared with the type, which came from Bogota ¹. Our Mexican specimens in every case have three hyaline spots in the apex of the primaries: in some of our Dueñas examples the middle spot is absent, as in the Chiriqui insect; in others from Dueñas there are also two, but the lower spot is wanting. We have dissected a Dueñas male and one from Omilteme, and find no practical difference between them.

The male genitalia (extracted from a Dueñas specimen agreeing as to its hyaline spots with the Chiriqui male) have a tegumen like that of *S. brennus*, the harpes are more truncate and slightly serrate at the extremity, the dorsal edge of the terminal lobe has a deep sinus, on the proximal side of which stands a strong erect lobe. (See Tab. LXXXIX. fig. 26.)

11. **Staphylus imbras**, sp. n. (Tab. LXXXIX. figg. 27, 28 ♂, 29 ♀.)

Alis saturate brunneo-fuscis, fasciis obscuris vix notatis; anticis punctis hyalinis subapicalibus nullis (♂); palpis subtus ochraceo-fulvidis, squamis paucis nigris intermixtis.

♀ mari similis, sed major, fasciis obscuris alarum magis obviis et anticis punctis tribus subapicalibus hyalinis instructis.

Hab. MEXICO, Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Cordova (*H. Rümeli*), Rinconada, Coatepec, Paso de San Juan (*W. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Dueñas, Zapote, Panima (*Champion*).

We have a considerable series of this species agreeing in outward characters, slight though they are. From *S. giselus* this insect can be distinguished by the absence in the male of subapical hyaline spots, though in the supposed female three are distinctly shown. *S. brennus* is exceedingly like it, but has rather less prominent terminal joints to the palpi. The following species, *S. saletas*, is also very similar, but has two subapical hyaline spots on the primaries.

The male genitalia of all these insects have their peculiarities.

M. Mabilie has referred us to his *Hesperia melangon* (Bull. Soc. Ent. Belg. xxvii. p. lxxv) in naming a specimen sent to him; but the species now described can hardly belong to that insect, which is stated to have the wings greyish at the base. and the secondaries with two greyish bands on the disc.

The terminal portion of the tegumen of the male genitalia is a single stout spine with a slight hook at the end; at the base of this portion is a long erect tuft of hairs: the harpes end in a rounded lobe, and on the dorsal edge is a deep fissure with overlapping sides, two transverse lobes project inwards from the interior surface of the harpes. (See Tab. LXXXIX. fig. 28.)

12. **Staphylus saletas**, sp. n. (Tab. LXXXIX. fig. 30 ♂.)

Alis ferrugineo-brunneis, fusco variegatis; anticis maculis indistinctis discalibus nigricantioribus et punctis duobus subapicalibus hyalinis notatis: subtus ut supra, sed paulo pallidioribus, maculis omnibus forsan distinctioribus; ciliis ad basin squamis albidis intermixtis; palpis subtus albidis.

♀ mari similis, anticis plica costali nulla, punctis parvis tribus evanescentibus hyalinis in disco.

Hab. GUATEMALA, Dueñas (*Champion*).

A single male specimen differs from others of that sex belonging to this genus in having the wings of a rather rusty tinge, and the obscurer dark markings rather more distinct. It has, too, the palpi beneath clothed with white instead of fulvous scales, and the male genitalia are distinct. These have a tegumen nearly straight for the terminal half, and ending in a blunt rounded point: the harpes are short and rounded; they have a blunt erect spine on the dorsal edge, and a curved serrate ridge on the inner surface. (See Tab. LXXXIX. fig. 30.)

The female described above doubtfully belongs to this species.

f. S. EVEMERUS group.

13. **Staphylus evemerus**, sp. n. (Tab. LXXXIX. figg. 31, 32 ♂.)

Alis fusco-brunneis, fasciis transversis obscurioribus vix variegatis; anticis punctis subapicalibus hyalinis—nullis (♂), tribus (♀) in linea obliqua; palpis subtus squamis ochraceo-fulvis et nigris intermixtis vestitis.

Hab. COSTA RICA, Irazu, Rio Sucio, Caché (*Rogers*).

Of this species Mr. H. Rogers sent us several specimens. They hardly differ outwardly from several other members of the genus, but the male genitalia, as will be seen on examining the figures, are profoundly modified. These have an elongated slightly depressed tegumen ending in a blunt slightly hooked point: the scaphium is more fully developed than in the other species, and the harpes end in a long slightly upturned rod, having a finely serrate dorsal edge and long external and terminal

hairs; about the middle of the dorsal edge is a large lobe, from which proceeds a strong erect spine with a serrate end. (See Tab. LXXXIX. fig. 32.)

g. Position uncertain.

14. **Staphylus unifascia.** (Tab. XC. figg. 1, 2 ♂.)

Antigonus unifascia, Mab. Le Nat. xi. p. 239 (1889) ¹.

Alis grisescenti-nigricantibus, ad basin obscurioribus, fascia indistincta discali ejusdem coloris; anticis punctis duobus subapicalibus hyalinis; palpis subtus albis.

♀ mari similis, sed major, punctis hyalinis anticearum majoribus.

Hab. MEXICO, Coatepec, Paso de San Juan (*W. Schaus*); HONDURAS, San Pedro Solá (*Wittkugel, in mus. Staudinger*); PANAMA (*mus. Staudinger* ¹).

Dr. Staudinger has lent us his Honduras specimen, which bears M. Mabilles' label, and has doubtless been compared with the type from Panama. It agrees also fairly with the description, in which, however, no mention is made of the two subapical hyaline spots on the primaries. In a male from Mexico only one of these spots is faintly visible, but in the female both are clearly shown.

We have no specimen for dissection of this species, so that its position must remain for the present uncertain.

SCANTILLA, gen. nov.

This genus is very closely allied to *Staphylus*, so far as the outward appearance goes. Its wings are of the same dull colour, with hardly a trace of any markings. The secondaries are evenly rounded. The primaries have no costal fold, the club of the antennæ is stouter, and the terminal joint of the palpi longer and more depressed.

The following is the only species we can yet place in *Scantilla*:—

1. **Scantilla opites**, sp. n. (Tab. XC. figg. 3, 4, 5 ♂.)

Alis brunneo-fuscis, basi et fascia discali saturatioribus vix variegatis: subtus fere unicoloribus, squamis paucis obscure fulvis aspersis; palpis subtus albicantibus.

Hab. GUATEMALA, Dueñas (*Champion*).

Of this species Mr. Champion sent us several specimens. The absence of the costal fold in the primaries of the male distinguishes the species from all the members of *Staphylus*.

The male genitalia have a long nearly straight tegumen; on the dorsal edge of the base of the terminal section stands an erect tuft of hairs: the harpes are short, rounded at the end, which is furnished with short stiff spines; there is also a row of spines directed upwards from the base of the inner edge of the ventral fold. (See Tab. XC. fig. 5.)

PARAMIMUS.

Paramimus, Hübner, Verz. bek. Schm. p. 115 (1816); Wats. P. Z. S. 1893, p. 50.

This is a compact genus containing four or five allied species, all carrying a similar pattern on the wings*.

Capt. Watson places it next to *Pythonides*, but it has little in common with the typical members of that genus as restricted by us.

The primaries are elongated, the outer margin being shorter than either of the others; the lower discocellular is shorter than the middle, the upper discocellular being distinct and oblique; there is no costal fold. The antennæ have a long, not very distinct club, which is evenly curved and rather blunt at the tip. The palpi are covered with thick-set white scales, beyond which the long black terminal joint projects; the hind tibiæ are not swollen, but have a tibial tuft and carry the usual two pairs of spurs.

The position of *Paramimus* is somewhat uncertain, and has not much in common with the genera immediately preceding, the wings being longer, the colour different, and the antennæ with a less-defined club. The latter and the long pointed palpi suggest some relationship with *Pholisora*, and in this uncertain position we must for the present leave the genus.

1. *Paramimus stigma*. (Tab. XC. fig. 6.)

Leucochitonea stigma, Feld. Reise d. Nov. Lep. p. 524, t. 74. ff. 26, 27¹.

Pythonides stigma, Godm. & Salv. Trans. Ent. Soc. 1880, p. 127².

Paramimus stigma, Wats. P. Z. S. 1893, p. 50³.

Alis saturate fuscis, anticis maculis duabus ultra cellulam sat magnis, una costali, altera subquadrata discali, albido-hyalinis, in certa luce argenteis, inter hanc et marginem internum plaga obvia coccinea; posticis fascia mediana alba, ad costam rotundata, costam ipsam haud attingente: subtus anticis ut supra, sed pallidioribus; posticis usque ad basin (costa excepta) albis et macula subanali alba notatis; palpis subtus, corpore subtus et supra medialiter albis.

Hab. PANAMA (*Ribbe, in mus. Staudinger*), Taboga, I., Bay of Panama (*J. J. Walker*).
—NORTH COLOMBIA^{1 2}.

We have several specimens of this species captured by Mr. J. J. Walker on Taboga Island, agreeing with one of Ribbe's examples taken on the Isthmus of Panama, and others from Santa Marta, whence Felder's types were derived †.

* *P. leucaria* (Hew.), placed in this genus by Capt. Watson (P. Z. S. 1893, p. 50), does not really belong here; it has the hind tibiæ of the male much swollen, and the terminal joint of the palpi not nearly so long.

† A very closely allied form occurs in the Brazilian Province of Matto Grosso, where Mr. Herbert Smith captured several specimens at Chapada. These have the characteristic spots of *P. stigma* on the primaries; but the lower of the two hyaline spots is of more irregular shape and not subquadrate, and moreover enters the cell. This we propose to call *PARAMIMUS HERBERTI*.

Another form from Santa Marta has the primaries dark brown, only relieved by the red spot on the inner margin, the two large hyaline spots being wholly absent. This we call *PARAMIMUS MONOSTIGMA*.

The male genitalia have a complicated tegumen, which seems cleft in the middle, each lateral portion consisting of two strongly curved hooks, below which (perhaps part of the scaphium) are two more horn-like points: the harpes are long and cleft towards the end, the upper portion is continued in a long slightly depressed rod, the under portion is wider and shorter and upturned at the end, which is rather strongly serrate. (See Tab. XC. fig. 6.)

TIMOCHREON, gen. nov.

Pythonides, sect. A, Watson, P. Z. S. 1893, p. 51 (partim).

Both *Helias satyrus*, Feld., and *Helias satyrina*, Feld., were placed by Capt. Watson in the genus *Pythonides*; but they not only differ from the typical species of that genus but also from one another, so much so that we feel obliged to place them under distinct generic names, and for *H. satyrus* we use *Timochreon*.

T. satyrus at present stands alone. The body is rather stout, the antennæ end in a long, gradually curved, slightly thickened, pointed club; the palpi are porrect, the terminal joint stout and not very prominent; the hind tibiæ have two pairs of spurs and a slender tuft of hair at the proximal end: the primaries are rather pointed and without costal fold; the discocellulars are oblique, the upper comparatively long, the middle and lower subequal; the third median segment is short, about equal to the lower discocellular: the secondaries are slightly produced at the anal angle; the discocellulars and radial feeble, the lower discocellular longer than the upper; the third median segment distinct and about equal to the second subcostal segment.

Timochreon differs from *Pythonides* in the less prominent anal angle of the secondaries, the less thickened club of the antennæ, the more prominent porrect palpi, and the presence in the male of tibial tufts of hair. There is much difference in the male genitalia, as will be seen by comparing the figures.

The range of *T. satyrus* extends from Panama to South Brazil.

1. *Timochreon satyrus*. (Tab. XC. fig. 7.)

Helias satyrus, Feld. Reise d. Nov. Lep. p. 534, t. 74. ff. 3, 4¹.

Pythonides satyrus, Wats. P. Z. S. 1893, p. 51².

Alis fuscis, fasciola discali alteraque latiore submarginali vix saturatioribus; posticis maculis septem submarginalibus nigris saturate cervino cinctis, eis venæ radialis utrinque minimis et elongatis, reliquis rotundatis: subtus omnino pallidioribus et grisescentioribus, fasciis et maculis magis distinctis; palpis subtus albidis.

Hab. PANAMA (*Ribbe, in mus. Staudinger*), Emperador Station (*J. J. Walker*).—COLOMBIA¹; VENEZUELA; AMAZONS VALLEY; SOUTH BRAZIL.

We have seen two specimens of this species from Panama—one captured by Ribbe during his first visit to the Isthmus, the other by Mr. J. J. Walker at Emperador Station on the Railway Line. The type described and figured by Felder came from

Bogota¹. We have specimens of Mr. Simons's collecting from Northern Colombia, others from Venezuela. Bates found it at Para, and Mr. Herbert Smith at Chapada, in Matto Grosso.

ZOPYRION, gen. nov.

This genus, which contains *Helias satyrina*, Feld., and the two species mentioned below, agrees with *Timochreon* in the general facies of the species, which are somewhat like Satyrinæ in their colour; but *Zopyrion* differs from *Timochreon* in having a more slender body, more rounded wings, a more abrupt club to the antennæ, a longer, more prominent terminal joint to the palpi, and a distinct costal fold to the primaries.

The species range from South-western Mexico to South Brazil.

1. *Zopyrion sandace*, sp. n. (Tab. XC. figg. 8, 9, 10 ♂.)

Alis fuscis fere unicoloribus, ciliis sordide albis, venis fuscis interruptis; anticis punctis indistinctis sex ultra cellulam, aliisque quatuor discalibus, omnibus lineam maculosam sinuosam formantibus, pallide fuscis: subtus griseis, anticis ochraceo lavatis, ad marginem externum fusco irroratis; posticis lineola irregulari transversa per cellulam alteraque duplici abbreviata discali, punctisque submarginalibus pallide ochraceo-fuscis; palpis subtus albis, penicilla tibiali nigra.

♀ mari similis, plica costali nulla neque penicilla tibiali; alis subtus obscurioribus.

Hab. MEXICO, Venta de Zopilote, Acapulco, Dos Arroyos, Rio Papagaio, Tierra Colorada (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*).

Mr. Smith sent us a series of specimens of this species all taken in September and October at various places in the State of Guerrero, and we have one specimen from Mr. Richardson taken on the slope of the Volcan de Santa Maria in Guatemala.

The species is evidently allied to *Z. satyrina* (Feld.), but may at once be distinguished by the absence of the dark submarginal spots on the secondaries beneath.

Besides the two species already mentioned, we have several specimens of a third in South America which we describe below*, as well as indications of others of which our materials are scanty.

The male genitalia of *Z. sandace* have a double pointed tegumen, under which is a well-developed scaphium: the harpes are cleft at the end, where there is a deep sinus; the upper portion curves downwards, and the under portion is wider, curves upwards, and both have their ends serrate; from the base of the inside of the harpe a long lobe proceeds outwards, which is pointed and reaches a little beyond the bottom of the cleft, its upper margin being sinuous and thickly serrate. (See Tab. XC. fig. 10.)

* *Z. sandace* affinis, sed alis subtus omnino magis ochraceis, lineolis posticarum omnino disruptis vix obviis.

Hab. BRAZIL, Corumba in Matto Grosso (*H. H. Smith*).

PHOLISORA.

Pholisora, Scudder, Rep. Peab. Ac. Sc. 1871, p. 72; Wats. P. Z. S. 1893, p. 68.

A small genus of rather obscure affinities, based by Mr. Scudder upon *Papilio catullus*, Fabr., as its type. *Hesperia hayhursti*, Edw., and other species have been placed with it by American writers, but it is not certain that any of them are strictly congeneric.

We place the following species in *Pholisora*, but with some hesitation, as the male secondary sexual characters, as will be seen below, differ very considerably from those of *P. catullus*. In general appearance, neurulation, and the structure of the antennæ and palpi there appears to be little divergence, and the last-named afford a characteristic feature.

The primaries of *P. mexicana* are, like those of *P. catullus*, rather rounded at the apex, the outer margin being evenly convex; the third median segment is short, about equal to the lower discocellular, which again equals the middle, the upper discocellular being distinct and about half the length of the others.

The secondaries very slightly project about the middle of the outer margin; the second median segment is shorter than the second subcostal segment; the discocellulars and radial are feebly developed.

The antennæ have an elongated slightly curved club, the end of which tapers gradually to a rather blunt point; this is not so much rounded as in true *Hesperia* and its allies, nor so sharply pointed as in most of the preceding genera. The palpi have a long porrect terminal joint. The hind tibiæ carry two pairs of spurs.

The male genitalia of *P. catullus* have a tegumen ending in two claws, at the base of which arise two lobes, one on either side; the scaphium is well developed and shows a strongly chitinated end; the harpes have two slightly rounded lobes, folded backwards and serrate along their edges; the œdeagus is complicated, and on the underside at the end has a strong recurrent hook. Comparing these points with the figure of the genitalia of *P. mexicana* (Tab. XC. fig. 12) the differences are obvious.

The range of the genus extends over both the Eastern and Western States of North America and over nearly the whole of Mexico.

1. *Pholisora mexicana*. (Tab. XC. figg. 11, 12 ♂.)

Nisoniades mejicanus, Reakirt, Pr. Ac. Phil. 1866, p. 334¹.

Alis saturate fusco-nigricantibus, ciliis elongatis fuscis, fascia submarginali maculosa fusco-albicante; anticis maculis sex subapicalibus in serie tortuosa albis: subtus anticis maculis tribus subapicalibus albis tantum notatis, margine interno pallidiore; plica costali obvia: antennis nigris; palpis subtus, præter apices, pure albis.

♀ anticis maculis novem albis notatis in serie tortuosa extensis a costa usque ad marginem internum, macula decima alba ad cellulæ finem.

Hab. NORTH AMERICA, South-western States.—MEXICO, Sonora (*coll. Bates*), near Durango city (*Becker*), Lake Chapala (*W. B. Richardson*), Morelia (*F. D. G.*), Cordova (*Rümeli*), Puebla (*H. J. Elwes*), Vera Cruz (*W. H. Edwards*¹).

Reakirt's description of this species was based upon a specimen taken near Vera Cruz by Mr. W. H. Edwards. We have a series of examples of it both from that State and also from several places in Western Mexico, and we believe that it extends beyond our limits into the North-American States of California, Colorado, and Nevada.

The male genitalia have a simple tegumen ending in a central claw, with a lobe on either side at its base; the scaphium is feebly developed: the harpes appear truncated at the end, due to the folding inwards of the upper and lower corners; the lower of these folds has a nearly smooth edge. (See Tab. XC. fig. 12.)

2. *Pholisora clytius*, sp. n. (Tab. XC. figg. 13, 14 ♂.)

P. mexicana similis, sed minor, alis immaculatis fusco-nigris; posticis ad medium marginis externi magis productis.

Hab. MEXICO, Tres Marias Is. (*Forrer*).

Mr. Forrer sent us three specimens of this obscure species, which, however, is quite distinct from *P. mexicana*, for, besides the outward characters mentioned above, the male genitalia present differences which must not be overlooked.

The tegumen is a more sinuous rod and has no lobes at the base; the scaphium is hardly visible; the harpes show two angular lobes at the end, the lower of which is serrate. (See Tab. XC. fig. 14.)

3. *Pholisora alpheus*. (Tab. XC. fig. 15 ♂.)

Thanaos alpheus, W. H. Edw. Trans. Am. Ent. Soc. v. p. 206¹.

Pholisora alpheus, W. H. Edw. Papilio, ii. p. 139².

Alis fusco-nigris, pallidior fusco variegatis; anticis maculis tribus subapicalibus et una discali inter ramos medianos albis, lineola obscure albida submarginali; posticis saturatioribus: subtus saturate fuscis; posticis squamis paucis albis, irregulariter notatis: palpis subtus albis.

Hab. NORTH AMERICA, New Mexico¹, Arizona².—MEXICO, Aguas Calientes (*F. D. G.*).

This species was described by Mr. W. H. Edwards from two specimens taken by Lieut. W. C. Carpenter in New Mexico in 1875¹, and he subsequently gave a fuller description from fresher examples taken by Morrison at Fort Grant in Arizona². We have several of Morrison's specimens, and also two taken by Godman at Aguas Calientes, which bring the species well within our limits.

Though we leave *P. alpheus* in *Pholisora*, where Mr. Edwards placed it, we are not sure that this will be its final resting-place. The antennæ are blunter than in typical *Pholisora*, and are shaped more like the antennæ of true *Hesperia*, but the palpi are long as in *Pholisora*.

The primaries have no costal fold; the hind tibiæ have two pairs of spurs, but no

tibial tuft. The male genitalia differ considerably from those of *Pholisora catullus*: the tegumen ends in a straight terminal simple rod, the base being large and craniform; the scaphium is well developed; the harpes are narrow and end in a long sickle-shaped rod curving downwards. (See Tab. XC. fig. 15.)

ATARNES, gen. nov.

The very distinct species described by Felder as *Leucochitonea salléi* does not clearly belong to any recognized genus, though its position must be assigned to the neighbourhood of the preceding genera.

The antennæ have a rather long hooked club, which tapers gradually to a blunt point; the palpi have the terminal joint moderately long and porrect; the hind tibiæ have two pairs of spurs, but no tibial tuft. The primaries are without a costal fold, the apex is rather acute, the outer margin convex; the third median segment is short but slightly longer than the lower and middle discocellulars, which are subequal and slightly oblique, the upper discocellular is distinct and about half the length of the others. The secondaries are rounded; the second median and second subcostal segments subequal; the discocellulars nearly transverse but feeble, as is also the radial.

The range of the genus is that of the single species and is given below.

1. **Atarnes sallæi.** (Tab. XC. fig. 16 ♂.)

Leucochitonea salléi, Feld. Reise d. Nov., Lep. p. 525, t. 74. f. 25¹.

Pythonides sallei, Butl. & Druce, P. Z. S. 1874, p. 369².

Alis fusco-nigris, anticis fascia mediana argentea extrorsum valde sinuata, area externa lineolis albis inter venas radiata, macula quadrata ad medium marginis interni testacea, extrorsum lunulis duabus nigris limbata; posticis area mediana lata alba, margine externo lineolis albis radiata: subtus ut supra, sed omnino pallidioribus: capite et thorace supra albo punctatis, abdomine albo sexcincto, corpore subtus albo; palpis (præter apices) albis.

♀ mari similis, sed major et alis magis rotundatis.

Hab. MEXICO, Jalapa (*H. Edwards*), Orizaba (*H. J. Elwes*), Cordova (*Sallé*¹, *Rümelin*), Atoyac (*H. H. Smith*, *Schumann*), Dos Arroyos in Guerrero (*H. H. Smith*), Temax in Yucatan (*G. F. Gaumer*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*); COSTA RICA (*Van Patten*²), Caché (*Rogers*).

This pretty species, well described and figured by Felder from specimens obtained by Sallé in the Mexican State of Vera Cruz¹, is fairly abundant in Southern Mexico and Guatemala, and thence probably spreads uninterruptedly over the lower lands of Central America to Costa Rica, the most southern point, so far as we know, of its range. In altitude it reaches as high as about 4000 feet in the mountains of Vera Cruz.

The male genitalia have a short strong tegumen, ending in a depressed point, to which the strongly developed scaphium approaches; the harpes are prolonged to a blunt point, near which, on the dorsal edge, is a lobe narrowly slit down the middle. See Tab. XC. fig. 16.)

HELIOPETES.

Heliopetes, Billberg, Enum. Ins. p. 81 (1820); Watson, P. Z. S. 1893, p. 64.

A genus containing about fifteen species, nearly all of which belong to the Neotropical region, *H. ericetorum* being, perhaps, the only exception.

From the superficial resemblance of the species to the African *Leucochitonea levubu* they have frequently been placed in the genus *Leucochitonea* by various writers. But, as Capt. Watson has pointed out, they have little or nothing to do with that genus, but should be grouped under Billberg's name *Heliopetes*, of which *H. arsalte* (Linn.) is the type.

Of the eight species found in our region all but two have a very wide range over the South-American continent; the two exceptions are:—*H. macaira*, which, though generally distributed throughout our country, does not seem to pass the Isthmus of Panama, and *H. cnemus*, which seems restricted to Southern Mexico. Of the southern species, five range as far north as Sinaloa, *H. petrus* being the only one that does not pass Nicaragua.

The antennæ have a moderately long, blunt, slightly curved club; the palpi are porrect, the terminal joint slender, projecting slightly beyond the prominent hairs of the second joint: the primaries have a distinct costal fold in the male; the third median segment and the lower and middle discocellulars are subequal, the upper discocellular distinct and about half the length of the others; the secondaries have a short third median segment, the discocellulars are subequal and, as well as the radial, feeble. The hind tibiæ have two pairs of spurs, and in the male a tuft at the proximal end.

1. *Heliopetes domicella*.

Syrichthus domicella, Erichs. in Schomb. Reise n. Guiana, iii. p. 604¹.

Heliopetes domicella, Wats. P. Z. S. 1893, p. 64².

Alis fuscis, ad basin pilis griseis notatis, fascia lata communi, irregulariter limbata, alba; anticis maculis quatuor costalibus, serie submarginali et una inter venam medianam et ramum suum secundum, albis; posticis serie duplici (exteriore evanescente) alba, ciliis albis fusco interruptis: subtus ut supra, colore fusco-ochraceo suffusus et posticis ad basin albidis.

♀ mari similis.

Hab. MEXICO, Rio Papagaio, Dos Arroyos, Acapulco (*H. H. Smith*).—SOUTH AMERICA, from Colombia to Guiana¹ and Brazil.

The only district within our region where *Heliopetes domicella* occurs is Western Mexico, and here Mr. Herbert Smith captured several specimens when collecting in the State of Guerrero in the months of September and October 1889. These agree accurately with our South-American examples, of which we have a large series from many places ranging from Colombia to South-eastern and Southern Brazil. Erichson's types came from British Guiana, where they were taken by Schomburgk¹.

2. **Heliopetes arsalte.** (Tab. XC. figg. 17, 18, 19 ♂.)

Papilio arsalte, Linn. Mus. Ulr. p. 246¹; Syst. Nat. i. p. 762²; Clerck, Icon. Insect. t. 22. f. 2³.

Leucochitonea arsalte, Aurivillius, Kongl. Svenska Vet.-Ak. Handl. xix. no. 5, p. 58⁴.

Heliopetes arsalte, Wats. P. Z. S. 1893, p. 64⁵.

Leucochitonea bianca, Plötz, Stett. ent. Zeit. 1885, p. 37?⁶

Alis albis, nigro marginatis; anticis angulo apicali latiore nigro maculas elongatas includente; posticis ciliis albis fusco intermixtis, margine interno fusco atomato: subtus albis; anticis costa ad basin aurantia, ad apicem venis omnibus nigris; posticis venis omnino fuscis, area juxta venam medianam et ramum suum primum et area juxta venam internam latiore fuscis; corpore supra fusco, subtus albo; palpis subtus albis.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), San Blas (*W. B. Richardson*), Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Atoyac (*H. H. Smith*), Cordova (*Rümelin*), Teapa (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Choctum, Polochic and Motagua Valleys (*F. D. G. & O. S.*), Cahabon, Panima, Teleman, San Gerónimo (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu, Caché (*Rogers*); PANAMA, Chiriqui, Veraguas, Calobre (*Arcé*), Lion Hill (*M. Leannan*).—SOUTH AMERICA generally to Paraguay; JAMAICA.

Heliopetes arsalte is one of the commonest of the Hesperiidæ in the Neotropical region, being found everywhere throughout the low-lying country up to an elevation of about 3000 feet. There is little individual variation between specimens from remote distances, so that no separation into geographical races seems practicable. Mexican and Central-American specimens have the apex of the primaries, as a rule, rather darker, so that the subapical band of white spots is more or less isolated. The exceptions are so frequent that no separation of the northern insect is desirable; but it is probably to it that Plötz's name *Leucochitonea bianca*, described from specimens from an unknown locality⁶, is applicable.

The male genitalia have the tegumen ending in a hook, which is bent downwards from its base almost to a right angle, the point nearly meeting the well-developed scaphium: the harpes are cleft at the end so as to form two lobes, the lower of which is bent inwards and armed along its extremity with a strongly serrate edge; the upper lobe is shorter and rounded at the end. (See Tab. XC. fig. 19.)

3. **Heliopetes petrus.**

Brontiades petrus, Hübn. Verz. bek. Schm. p. 113¹.

Leucochitonea petrus, Plötz, Stett. ent. Zeit. 1885, p. 38².

Urbanus juvenis niveus, Hübn. Samml. ex. Schm. i. t. 159. ff. 1, 2³.

Leucochitonea laginia, Hew. Descr. Hesp. p. 48⁴.

Alis nitide albis; anticis angulo apicali et margine externo nigricantibus, illo fasciam obliquam maculosam, interdum obsoletam albam includente; posticis nigro anguste marginatis; ciliis interne albis, externe nigris: subtus alis ad basin ochraceo lavatis; anticis fascia subapicali multo majore, maculis duabus inferioribus majoribus; posticis venis et linea angusta marginali nigris, macula ad medium marginis externi nigra: corpore supra nigricanti-griseo piloso, subtus linea mediana et una utrinque alba longitudinaliter notato; palpis subtus nigris, squamis paucis albis intermixtis.

Hab. NICARAGUA, Chontales (*Janson*).—SOUTH AMERICA, from Colombia to Guiana, Lower Amazons.

We have only a single specimen of this *Heliopetes*, agreeing with Hübner's figure of the male of his *U. j. niveus*³, which he subsequently called *Brontiades petrus*¹, the female being, perhaps, distinct. The male was also named *Leucochitonea laginia* by Hewitson⁴. From South America we have several examples, all from the more northern parts.

The next species is very closely allied to this; but *H. petrus* has no dark spots on the middle of the under surface of the secondaries, though *H. alana* varies somewhat in this respect.

4. *Heliopetes alana*. (Tab. XC. figg. 20, 21, ♂.)

Pyrgus alana, Reak. Pr. Ac. Phil. 1868, p. 90¹.

Leucochitonea adusta, Plötz, Stett. ent. Zeit. 1885, p. 39?²

H. petro similis, sed alis posticis subtus macula magna infra cellulam, supra ramos medianos, altera ad medium costæ, et duabus marginalibus, una ad angulum apicalem, altera ad medium marginis externi, fuscis.

Hab. MEXICO, Cordova (*Rümel*), Orizaba (*H. J. Elwes*), Morelia (*F. D. G.*), Atoyac, Vera Cruz (*H. H. Smith*), Oaxaca (*Fenochio*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panima, Panzos, San Gerónimo, Zapote (*Champion*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*), Calobre (*Arcé*), Panama (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA generally, from Colombia¹ and Venezuela to Brazil and Paraguay.

A much commoner insect than *H. petrus*, and with a wider range both northwards into Mexico and southwards as far as Paraguay.

There can be little doubt that Reakirt's description, based upon specimens from Insagasuga in Colombia¹, refers to this species, and that Plötz's *L. adusta*² also belongs to it. Of the latter we have a specimen given us by Herr Semper with Plötz's name attached to it. It is rather small, and has the subapical band of the primaries very distinct, but it otherwise agrees in the main with our large series.

The male genitalia do not differ materially from those of *H. nivella* and *H. macaira*, but the lower lobe of the harpes is wider, and the upper smaller and less prominent.

5. *Heliopetes nivella*. (Tab. XC. figg. 22, 23, 24 ♂.)

Leucoscirtes nivea, Scudder, Rep. Peab. Ac. Sc. 1871, p. 73 (*nec Cramer*)¹.

Leucochitonea nivella, Mab. Bull. Soc. Ent. Belg. 1883, p. lv².

Leucochitonea orbiger, Mab. Le Nat. x. p. 242 (1888)³.

Alis albis, ad basin nigricantibus; anticis costa, apice et margine externo nigris, his albo maculatis, venis omnibus ad marginem nigris; posticis lineola submarginali nigra, ad termines venarum latiore: subtus albis; anticis fusco ut in pagina superiore notatis; posticis ad basin nigris, albo indistincte variegatis,

cellula omnino alba, margine externo a vena subcostali usque ad venam submedianam fusco (area utrinque ad venam radialem alba excepta), lunulis tribus albidis submarginalibus notato, ciliis albis ad termines venarum fuscis; corpore supra fusco, subtus albo; palpis subtus albis, segmento terminali nigro.

Hab. MEXICO, Lake Chapala (*W. B. Richardson*), Dos Arroyos, Rio Papagaio, Acapulco, Rincon, all in Guerrero (*H. H. Smith*), Cordova (*Rümelí*), Atoyac (*H. H. Smith*), Tehuantepec (*Scudder*¹); GUATEMALA (*Scudder*¹), San Gerónimo (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel, in mus. Staudinger*).—COLOMBIA²; BRAZIL³.

Having one of Mr. Scudder's types of his *L. nivea* before us, and specimens of *L. orbigera* and *L. nivella* named by Mons. Mabilie from Dr. Staudinger's collection, we have no hesitation in referring them to the same species, which would bear Mr. Scudder's name, as it has many years' priority, had not the specific name been long ago used by Cramer for the species now known as *H. arsalte* (Linn.). Our specimens of *H. nivella* are mostly from Western Mexico, where Mr. Herbert Smith found it in some numbers; but it is not confined to that district, for we have a few examples from the State of Vera Cruz and others from Guatemala.

On the upperside *H. nivella* is not unlike *H. macaira*, but beneath the secondaries are much less heavily marked, and in the latter the wide dark border of the secondaries is, as a rule, unbroken. The two species must be closely allied, as there is practically no difference in their male genitalia. These in *H. nivella* show a tegumen ending in a simple arched rod; the scaphium is well developed; the harpes are cleft at the end, the lower lobe narrow and curved inwards with a few prominent teeth at the end, the upper lobe is wide and rounded at its extremity. (See Tab. XC. fig. 24.)

6. *Helioptes macaira*.

Pyrgus macaira, Reak. Pr. Ac. Phil. 1866, p. 334¹.

Syrictus oceanus, W. H. Edw. Trans. Am. Ent. Soc. iii. p. 213².

Leucochitonea locutia, Hew. Ex. Butt., *Leucochitonea*, t. 2. ff. 19, 20 (1875)³; Plötz, Stett. ent. Zeit. 1885, p. 39⁴.

Helioptes locutia, Wats. P. Z. S. 1893, p. 64⁵.

Præcedenti similis et alis supra haud distinguendus; subtus posticis omnino saturationibus, margine externo fusco integro.

Hab. NORTH AMERICA, Arizona².—MEXICO, Mazatlan (*H. Edwards*), San Blas (*W. B. Richardson*), Rincon in Guerrero (*H. H. Smith*), near Vera Cruz (*W. H. Edwards*¹), Jalapa (*F. D. G., M. Trujillo*), Orizaba (*coll. Reakirt*¹), Cordova (*Rümelí*), Atoyac (*H. H. Smith*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Chacoj, San Gerónimo, Dueñas, Zapote (*Champion*); COSTA RICA, Caché, San Francisco (*Rogers*); PANAMA⁴ (*Arcé*), Taboga I. (*G. Mathew*³).

There can be little doubt that the names given above all apply to one species, which must take Reakirt's title *P. macaira*, being the oldest. Mr. Edwards's *S. oceanus* was based upon an Arizona specimen and Hewitson's on one from Panama. Our series

nearly extends to both these places, and there is no variation amongst it to justify any separation. The only question is whether *H. nivella* is sufficiently distinct from *H. macaira*, but the much darker secondaries beneath and their dark uninterrupted margin seem sufficient to distinguish them. The male genitalia offer no tangible differences.

7. *Heliopetes laviana*.

Leucochitonea laviana, Hew. Descr. Hesp. p. 48 (1868)¹; Ex. Butt., *Leucochitonea*, t. 2. ff. 15, 16²; Plötz, Stett. ent. Zeit. 1885, p. 40³.

Heliopetes laviana, Wats. P. Z. S. 1893, p. 64⁴.

Leucochitonea pastor, R. Feld. Verh. z.-b. Ges. Wien, 1869, p. 476⁵.

Pyrgus leca, Butl. Trans. Ent. Soc. 1870, p. 510⁶.

Alis cretaceo-albis, ad basin nigricantibus; anticis apice et margine externo fusco-nigricantibus, illo fascias duas arcuatas albidas includente, hoc fascia submarginali maculosa notato; posticis margine externo stricte fusco, fascia submarginali quoque fusca, lunulas albas includente, ciliis albis: subtus anticis albis, maculis duabus brunneo-fuscis, una costali, altera apicali, apice et margine externo viridescenti-fuscis, fusco variegatis; posticis viridescenti-fuscis, dimidio basali saturatiore, margine suo externo valde sinuoso, macula in cellula supra segmentum medianum tertium fusca, margine externo lato viridi-fusco, limbo suo interno recto lineola albida marginato; palpis subtus albis, segmento tertio brevi nigro.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Presidio de Mazatlan (*Forrer*), Cordova (*Rümelì*), Lerma (*Hedemann*⁵), Coatepec (*Brooks*), Atoyac (*H. H. Smith*), Rio Papagaio, Tierra Colorada, Acapulco, all in Guerrero (*H. H. Smith*), Oaxaca (*Fenochio*), Valladolid in Yucatan (*G. F. Gaumer*); GUATEMALA, Polochic Valley, Central Valleys (*F. D. G. & O. S.*), Dueñas (*Champion*); NICARAGUA¹, Chontales (*Belt*).—SOUTH AMERICA, from Colombia⁵ and Venezuela⁶ to South Brazil⁵ and Argentina.

Heliopetes laviana appears to have a continuous range from Northern Mexico to Argentina, being abundant in the low-lying lands up to an elevation of about 3000 or 4000 feet. It has been described from specimens taken at several points of this wide area. *L. pastor* was based upon examples from Mexico, Colombia, and Southern Brazil⁵, *P. leca* upon a Venezuelan specimen⁶, whilst Hewitson's type of *L. laviana* came from Nicaragua¹. There can be little doubt that all these names apply to the same species, which must bear Hewitson's oldest title.

The male genitalia of *H. laviana* are similar to those of *H. nivella*, *H. macaira*, and other members of the genus.

8. *Heliopetes cnemus*, sp. n. (Tab. XC. figg. 25, 26.)

Alis albis, basi et marginibus externis late fuscis, his ad apicem indistincte albido maculatis, ciliis albidis: subtus anticis albidis, maculis duabus, una ad apicem, altera costali juxta eam fuscis; posticis fusco-albidis, stria mediana albicante a basi ad marginem externum supra eam macula costali, altera infra cellulam et margine externo lato fuscis, angulo anali albo; palpis subtus albis, apice fuscis.

Hab. MEXICO, Lake Chapala (*W. B. Richardson*), Dos Arroyos, Venta de Zopilote, Acapulco in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*).

We have six specimens of this species, all of them apparently females, so that we cannot with certainty determine its position. From the markings of the underside it resembles to some extent *H. laviana*, but may readily be distinguished on the upper-side by the wide dark outer border to the wings and the large extent of the dark apex to the primaries.

HESPERIA.

Hesperia, Fabricius, Ent. Syst. iii. p. 258 (1793); Scudd. Pr. Am. Ac. Arts & Sc. x. p. 187; Wats. P. Z. S. 1893, p. 64.

Pyrgus, Hübner, Verz. bek. Schm. p. 109; Plötz, Mitth. nat. Ver. Neu.-Vorp. u. Rüg. xv. p. 1.

The genus *Hesperia*, formerly of wide and indefinite limits, has now been restricted to the comparatively small group of Hesperiidæ of which *H. malvæ* is the type. Thus curtailed it contains forty or fifty species which are scattered over the temperate and tropical portions of a large portion of the world.

Capt. Watson divides *Hesperia* into four sections, defining them by the presence or absence of such male characters as a costal fold to the primaries and a tuft of hair at the proximal end of the hind tibiæ; this is also Plötz's arrangement: but these authors do not always assign the same species to the same section, and we have reason to differ from both, so that we have been unable to make use of either memoir in our account of the three species here treated of. These readily fall into three divisions as follows:—

- A. A costal fold and a tuft on the hind tibiæ *syrichtus*.
- B. A costal fold but no tuft on the hind tibiæ *montivaga*.
- C. No costal fold, no tuft on the hind tibiæ *notata*.

Plötz (*loc. cit.*) names several other forms from Mexico and Central America, but we have quite failed to recognize them from his tabular descriptions. They are *albescens* (p. 4) from Mexico, *insolatrix* (p. 4) from Mexico, *ajutrix* (p. 15) from Mexico, *lycurgus* (p. 18) from Central America, *varus* (p. 20) from Mexico.

The genus *Hesperia* belongs strictly to the section of the family with the antennæ distinctly blunt and the club well defined. The harpes of the male genitalia are symmetrical, the reverse being particularly the case in the genus *Thanaos*.

1. *Hesperia syrichtus*. (Tab. XC. fig. 27 ♂.)

Papilio syrichtus, Fabr. Syst. Ent. p. 534¹.

Hesperia syrichtus, Scudder, Rep. Peab. Ac. Sc. 1871, p. 73²; Plötz, Mitth. nat. Ver. Neu.-Vorp. u. Rüg. v. p. 14³.

Pyrgus syrichtus, Butl. & Druce, P. Z. S. 1874, p. 369⁴.

Papilio orcus, Cr. Pap. Ex. t. 334. ff. I, K, L⁵.

Alis fuscis, ad basin dense glauco pilosis; anticis ciliis fuscis, ad angulum analem albo interruptis, costa ad basin alba ad apicem punctis albis notata, stria elongata supra venam subcostalem, macula elongata ultra ramum suum primum, duabus ultra ramum secundum, tribus ultra ramum tertium, quatuor ultra ramum

quartam, et quatuor venarum discocellularum utrinque, tribus infra venam medianam et ramos suos, duabus in cellula omnibus albis, exterioribus fascias duas maculosas formantibus exteriore punctorum minorum composita; posticis ciliis albis, fasciis tribus maculosis externo punctorum parvorum composita interna fascia lata formante: subtus anticis fere ut supra, area interna pallida; posticis pallide fuscis, lineolis nigris valde irregularibus et interruptis transfasciatis, punctis duobus ad costæ basin, area ultra cellulam et supra eam et area interna albidis; palpis subtus albis, segmento terminali nigro.

♀. Alis fuscis sicut in mare maculatis, maculis omnibus minoribus.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Mazatlan (*H. Edwards*, *Forrer*), near Durango city (*Becker*), San Blas and Sierra Madre de Tepic (*W. B. Richardson*), Jalisco (*Schumann*), Omilteme, La Venta, Rincon, Tierra Colorada, Acapulco, Rio Papagaio, Dos Arroyos, all in Guerrero, Cuernavaca (*H. H. Smith*), Oaxaca (*Fenochio*), Tehuantepec (*Scudder*²), Tampico (*W. B. Richardson*), Jalapa, Misantla, Vera Cruz (*F. D. G.*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*), Atoyac, Teapa (*H. H. Smith*), Tabi in Yucatan (*F. D. G.*), Valladolid (*G. F. Gaumer*); GUATEMALA (*Scudder*²), Volcan de Santa Maria (*W. B. Richardson*), Zapote (*Champion*), Pacific coast, Dueñas (*F. D. G. & O. S.*), Guatemala city, San Gerónimo (*Champion*), Polochic Valley, Choctum (*F. D. G. & O. S.*); HONDURAS, San Pedro (*G. M. Whitely*); NICARAGUA, Chontales (*Belt, Janson*), Matagalpa (*Richardson*); COSTA RICA (*Van Patten*⁴), Caché, Irazu (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Veraguas, Calobre (*Arcé*), Lion Hill (*M'Leannan*).—SOUTH AMERICA generally, from Colombia to Paraguay and Entre Rios.

H. syrichtus is the commonest and most widely ranging species of *Hesperia* in South America, being equally common and diffuse in Central America and Mexico, in the latter country reaching to the frontier States, but not passing beyond into United States territory. In altitude it is found from the sea-level to a height of 7000 or 8000 feet in the mountains.

Though much like the next species (*H. montivaga*) in general appearance, it may be distinguished by the marginal row of spots being distinct and not obsolete, and the base of the wing being covered with greyish-white hairs. The primaries have a distinct costal fold in the male, as in *H. montivaga*, and the hind tibiæ a tuft of hairs at the proximal end which is absent in the other species.

The male genitalia have the tegumen ending in two blunt points, which are not depressed or hooked; the scaphium is very short, but well developed and serrate at the end: the harpes have a rounded end, the dorsal edge of which is produced backwards in a curve, has a strongly serrate edge, and ends in a separate rod; on the inner side of the ventral edge is a lobe carrying a few strong spines. (See Tab. XC. fig. 27.)

2. *Hesperia montivaga*. (Tab. XC. figg. 28, 29, 30 ♂.)

Pyrgus montivagus, Reak. Pr. Ac. Phil. 1866, p. 334¹.

Hesperia tessellata, Scudd. Rep. Peab. Ac. Sc. 1871, p. 73².

H. syricto similis, alis ad basin multo fuscioribus, pilis griseis vix vestitis, serie marginali macularum evanescente, vix obvia; anticis plica costali obvia; tibiis posticis haud penicillo instructis.

Hab. NORTH AMERICA, Western States, Arizona.—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), near Durango city (*Becker*), Aguas Calientes (*F. G. D.*), Puebla, Orizaba (*H. J. Elwes*), Lake Chapada (*W. B. Richardson*), Morelia, Patzcuaro, Misantla (*F. D. G.*), Cordova (*Rümeli*), Valladolid in Yucatan (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Reakirt's description¹ of this species was based upon specimens from Colorado and from "near Vera Cruz" in Mexico. Mr. Scudder² gives his *H. tessellata* a wide range over the Eastern States of North America, as well as California. There can be little doubt that the two names refer to the same species, for though neither author mentions the male characters of the costal fold and the absence of the brush of hairs on the proximal end of the hind tibiae, both refer to the evanescent character of the marginal row of white spots, as compared with their greater size in *H. syrictus*.

Plötz and others place the name *H. montivaga* as a synonym of *H. syrictus*, but they can hardly be correct, for, apart from the difference, pointed out above, of the size of the submarginal row of spots, the distribution of the two species is very different—*H. montivaga* being a northern insect not passing beyond the limits of Nicaragua, while *H. syrictus* is essentially a southern one and does not enter the States at all. The difference of the male genitalia seems conclusive as to the specific distinction of the two forms.

The range of *H. montivaga* in Mexico is very general, and extends from the northern frontier States to Vera Cruz and Yucatan.

The male genitalia differ from those of *H. syrictus* in the harpes having a long narrow rod starting backwards from the dorsal edge of the terminal lobe and reaching nearly to the base; the scaphium projects further, but is less strongly developed and rounded, not serrated at the end. (See Tab. XC. fig. 30.)

3. *Hesperia notata*. (Tab. XC. figg. 31, 32 ♂.)

Syrictus notatus, Blanch. in Gay's Fauna Chil. vii. p. 45¹.

H. montivagæ persimilis, et alis fere eodem modo picturatis, fascia mediana alba posticarum forsan angustiore et minus sinuata; mare nec anticis plica costali nulla, neque tibiis posticis penicillo instructis.

Hab. MEXICO, Mazatlan (*Forrer*), La Venta, Acaguizotla, Rio Papagaio, Dos Arroyos, all in Guerrero (*H. H. Smith*), Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), Zapote (*Champion*), Dueñas (*F. D. G. & O. S., Champion*), San Gerónimo, Chisoy Valley, Choctum (*F. D. G. & O. S.*); NICARAGUA, Matagalpa (*Richardson*); HONDURAS, San Pedro (*G. M. Whitely*); COSTA RICA (*Van Patten*), Irazu, Caché (*Rogers*); PANAMA, Lion Hill (*M^cLeannan*).—SOUTH AMERICA generally, from Colombia to Argentina.

H. notata, like *H. syrichtus*, is a common South-American insect, and has a similar range in Central America and Mexico, reaching in the latter country as far north as Mazatlan.

Though exceedingly like *H. montivaga*, this species seems to differ by its narrower, more regular band on the secondaries. As in that insect, the hind tibiæ of the male have no tuft of hairs at the proximal end, but *H. notata* is also destitute of a costal fold to the primaries.

The male genitalia resemble those of *H. montivaga*.

CELOTES, gen. nov.

It is obvious that *Pholisora nessus* of Edwards cannot be retained in that genus (the type of which is *Papilio catullus*, Fabr.); and as it differs from all the other known genera of Hesperiinæ we are compelled to propose a new name for it. Watson was apparently unacquainted with the insect.

The antennæ have a rather slender club, drawn out into a somewhat blunt point; the primaries have a distinct costal fold; the discocellulars are nearly transverse, the upper one is short, the middle and lower are about equal in length and each is twice as long as the upper. The palpi are moderately long, with the terminal joint depressed. The hind tibiæ have two pairs of spurs and in the male there is a strong tibial tuft. The male genitalia have a short tegumen terminating in two blunt points; the harpes are almost symmetrical; the scaphium is long, slender, and curved upwards, and is pointed at the tip. (See Tab. XCI. fig. 29.)

P. nessus in its general appearance resembles the members of the genus *Carcharodes*, Hübn., as defined by Watson, the type of which is *C. lavateræ* (Esp.). It differs from that genus in having a longer and more slender club to the antennæ, and in the presence of a strong tibial tuft to the hind legs in the male. There is no tuft of hairs on the inner margin of the primaries of the male beneath as in *C. lavateræ* and its allies.

Mr. Skinner, in his 'Catalogue of North-American Rhopalocera,' places this species in *Pyrgus*.

1. *Celotes nessus*. (Tab. XCI. figg. 27, 28 ♀; 29 ♂.)

Pholisora nessus, W. H. Edwards, Canad. Ent. ix. p. 192¹.

Spilothyrsus notabilis, Streck. Lep. Rhop. pt. 14, p. 131 (1877)².

Alis fuscis, lineis interruptis radiantibus ad marginem externum (ciliis includentibus) extendentibus pallidioribus; anticis punctis transversis minutis ad costæ mediam, alteris apicem propioribus, duobus ad cellulæ finem literam **U** formantibus; posticis quoque punctis tribus, aut quatuor, in dimidio externo, hyalinis: subtus pallidioribus, lineis radiantibus magis distinctis.

♀ mari similis.

Hab. NORTH AMERICA, Texas^{1 2}.—MEXICO, Northern Sonora (*Morrison*), Durango city (*Becker*).

We have received three specimens of this species from Mexico and a similar number from Texas; these latter were sent us by Mr. Strecker.

Celotes nessus has a very different appearance from all other Central-American species of Hesperiidæ we are acquainted with, from its alternately light and dark radiating lines on both wings, extending from their base to the outer margins, and also by the presence of small hyaline spots scattered over their surface. The outer margin of the secondaries is crenulated.

CHIOMARA, gen. nov.

Achlyodes mithrax, Möschl., clearly belongs to the section of Hesperiinæ having blunt antennæ as in true *Hesperia*, and for this insect we propose the name *Chiomara*, and associate with it *Thanaos gesta*, Herr.-Sch., and *Papilio asychis*, Cram. Neither of the latter is quite congeneric, as in both the terminal joint of the palpi is longer than in *C. mithrax*. *C. gesta* resembles *C. mithrax* in its dark coloration, but the palpi have a longer terminal joint. *C. asychis* differs in coloration as well as in having rather longer palpi. The last-named species was placed in *Ephyriades* by Plötz, and in *Hesperia* by Watson. Though close to the last-mentioned genus, it differs in several points, such as the total absence of a costal fold in the male, so that it had best be kept apart.

As common characters all these species have rather short hollow wings, the primaries of the male have no costal fold, the tibiæ carry a distinct tuft, and the harpes of the male genitalia are unsymmetrical, but not so much as in *Thanaos*.

1. *Chiomara asychis*. (Tab. XCI. figg. 1, 2, 3 ♂.)

Papilio asychis, Cr. Pap. Ex. t. 334. ff. E, F¹.

Ephyriades asychis, Plötz, Jahrb. Nass. Ver. f. Nat. xxxvii. p. 4².

Hesperia asychis, Wats. P. Z. S. 1893, p. 65³.

Achlyodes asychis, Staud. Ex. Schmett. p. 302, t. 100⁴.

Alis fuscis, purpureo vix tinctis, ciliis albidis, fusco interruptis; anticis plaga magna mediana valde irregulari albida squamis pallide fuscis irregulariter obscurata, plaga quoque ad basin albida fusco squamata, maculis duabus ad apicem albis, margine externo lunulis indistinctis lineaque submarginali albis notato; posticis plaga magna mediana irregulari alba, extra eam maculis albidis et punctis submarginalibus notatis: subtus albis, marginibus externis et costa anticarum fusco variegatis; palpis albis, segmento terminali nigro.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas (*Forrer*), San Blas, Jalisco (*W. B. Richardson*), Rincon, Tepetlapa, Dos Arroyos, and Tierra Colorada, all in Guerrero (*H. H. Smith*), Cordova (*Rümelin*), Atoyac (*H. H. Smith*), Yucatan (*Mus. Staudinger*); GUATEMALA, San Gerónimo (*F. D. G. & O. S., Champion*), Polochic Valley (*F. D. G. & O. S.*), Cubulco (*Champion*); HONDURAS (*Dyson*); COSTA RICA, Caché, Irazu (*Rogers*); PANAMA, Bugaba, David (*Champion*), Calobre (*Arcé*), Chiriqui⁴.—SOUTH AMERICA generally, from Colombia and Guiana to Argentina; ANTILLES¹.

A common species throughout the lowlands of Mexico and Central America up to an elevation of about 3000 feet. In South America it extends over the whole of the tropical portion and as far south as Cordova in Argentina, where the late F. W. White obtained specimens.

The Hesperids collected by Mr. H. H. Smith in the West Indian Islands of St. Vincent, Grenadines, and Grenada, and referred by us to this species (P. Z. S. 1896, p. 520), differ to some extent from the continental form. The St. Vincent specimens are much darker and have distinct spots over the outer portion of the wings beneath. Those from the Grenadines and Grenada are intermediate.

The male genitalia have a tegumen ending in two divergent points. The harpes are widely cleft at the end, dividing each into two lobes: the upper lobe of the left harpe is short and acute at the upper terminal corner, the lower edge being rounded, the lower lobe longer and somewhat spatulate: the right harpe has the upper lobe ending in a thickened edge, from which proceed long hairs; the dorsal edge of the lower lobe is serrate towards the end. (See Tab. XCI. fig. 3.)

2. *Chiomara mithrax*. (Tab. XCI. figg. 4, 5, 6 ♂.)

Achlyodes mithrax, Möschl. Verh. k.-k. zool.-bot. Ges. Wien, 1878, p. 225¹.

Alis nigricanti-brunneis, purpureo tinctis; anticis margine externo et fascia discali maculosa ad costam extendente saturate rufis, hac ad costam velutino-nigro maculata, fascia altera ad basin rufa velutino-nigro sex-maculata; posticis fasciis quatuor rufescentibus notatis, una basali, secunda per cellulam, tertia discali, quarta submarginali: subtus saturate purpureo-fuscis; anticis ad angulum analem et margine externo pallidiore rufescente; posticis dimidio distali fasciis tribus pallidis indistincte transfasciatis; palpis subtus fuscis, articulo terminali brevi nigro.

Hab. MEXICO, Acapulco, Rincon, Dos Arroyos, Chilpancingo, La Venta, and Acaguizotla, all in Guerrero (*H. H. Smith*); GUATEMALA, Polochic and Chisoy Valleys (*F. D. G. & O. S.*).—COLOMBIA¹ and SOUTH AMERICA generally to Brazil; CUBA.

The peculiar dark velvety markings on the primaries of this species render it readily distinguishable, but in general coloration the insect much resembles several species of the genus *Achlyodes*. The blunt antennæ seem to remove it from that group of the family and to justify its being placed here.

All our Mexican specimens were captured by Mr. Smith in the State of Guerrero, where the species would appear to be common. In Guatemala we only found it in the valleys of the interior at an elevation of about 3000 feet. No specimens have reached us from any other part of Central America, but in Colombia, whence Möschler's types were obtained, it is found, and in many other parts of South America also.

The male genitalia have a tegumen ending in two strong depressed hooks, and at their base arises a somewhat spatule-shaped lobe from the middle line. The harpes are unsymmetrical: the left harpe is truncate, with a strong thorn-like tooth rising from the dorsal edge near the end; the right harpe has a similar tooth, but in addition a lobe on the dorsal edge, broad at the base and with a blunt point directed backwards. (See Tab. XCI. fig. 6.)

3. *Chiomara gesta*. (Tab. XCI. figg. 7, 8, 9 ♂.)

Thanaos gesta, Herr.-Sch. Corr.-Blatt Regensb. xvii. p. 142¹.

Thanaos invisus, Butl. & Druce, Cist. Ent. i. p. 114²; P. Z. S. 1874, p. 369³.

Alis fuscis; anticis ad basin obscure variegatis, squamis paucis albidis intermixtis, macula obliqua pallida ad cellulæ finem, area discali linea lata transversa squamis albidis composita, altera submarginali pallide fusca: subtus fere omnino unicoloribus fuscis; palpis subtus fuscis, griseo intermixtis.

Hab. MEXICO, Mazatlan, San Blas (*G. Mathew*), Jalisco (*Schumann*), Acapulco, Rio Papagaio, Rincon, Hacienda de la Imagen, Acaguizotla, Tierra Colorada, Dos Arroyos, all in Guerrero, Cuernavaca (*H. H. Smith*), Cordova (*Rümeli*), San Lorenzo near Cordova (*M. Trujillo*), Rinconada, Coatepec (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Volcan de Santa Maria (*W. B. Richardson*), San Gerónimo (*F. D. G. & O. S., Champion*), Panima (*Champion*); HONDURAS (*Dyson, Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA (*Van Patten*^{2 3}), Caché, Irazu (*Rogers*); PANAMA, Bugaba (*Champion*).—SOUTH AMERICA, from Colombia to South Brazil; CUBA¹; JAMAICA.

A very common widely ranging species, found over the greater part of our country and the tropical portion of the continent of South America. In altitude it reaches from the sea-level to about 3000 or 4000 feet in the mountains of Mexico and Guatemala.

Herrich-Schäffer's description was taken from a Cuban specimen, and we have an example from that island which does not differ materially from a large series from the continent, amongst which are specimens named by M. Mabille and Dr. Staudinger, no doubt from the type. *Thanaos invisus*, Butl. and Druce, was based upon a Costa Rica insect which is before us and agrees with the rest of our series.

The male genitalia have a tegumen ending in two divergent depressed points, and from the base two more hooks arise one on either side; the scaphium is well developed and granular; the harpes are divided into three lobes, the lower straight and elongated, the middle one much shorter and slightly turned downwards, the upper erect and rounded and bearing a number of stiff spines. (See Tab. XCI. fig. 9.)

THANAOS.

Thanaos, Boisduval, Icon. Hist. des Lép. p. 240 (1832); Scudder, Butt. N. Engl. ii. p. 1445; Wats. P. Z. S. 1893, p. 69.

A complete monograph of this genus is much needed, as until such a work has been elaborated it is scarcely possible to give a satisfactory account of a few species such as occur within our region chiefly along its northern border.

In 1870 Mr. S. H. Scudder and Mr. E. Burgess wrote a paper "On Asymmetry in the Appendages of Hexapod Insects, especially as illustrated in the Lepidopterous Genus *Nisomiades*" (Proc. Bost. Soc. N. H. xiii. pp. 282-306), in which a number of

new species of North-American *Thanaos* (= *Nisoniades*) were described, the characters being derived solely from the structure of the male anal appendages. These were arranged into eight groups, which included all the North-American species known to the authors. Several of these species were subsequently described by J. A. Lintner in the Thirtieth Annual Report of the State Museum of New York, pp. 172–178 (Article IX. “On some Species of *Nisoniades*”), and in Mr. Scudder’s ‘Butterflies of the Eastern United States and Canada’ (1889).

Thanks to our American friends, and especially to Mr. Scudder, we have seen a fair series of named specimens of most of the North-American species, and by dissecting a number of males we have been able to compare our preparations with the figures of Scudder and Burgess’s paper, and so far verify the names. Others have reached us from the late H. K. Morrison’s collections, and the names on these we have tested as far as possible.

Thanaos is a well-marked genus belonging to the section with curved blunt antennæ, and a very distinct fold on the costa of the primaries of the male. The type of the genus is the European *T. tages* (Linn.), but by far the majority of the species are found in North America. A few occur in South America, where some of them are widely distributed. The asymmetry of the secondary male genitalia is very pronounced in most of the species, but this character is not shown in others. The latter it may be found necessary to separate. As pointed out by Messrs. Scudder and Burgess, it seems impossible to separate many of the species of this genus without examining the genitalia of the males, as there is no apparent external difference either in their markings or in the shape of their wings; but as these characters are constant over certain areas we have somewhat reluctantly been compelled to follow these authors by recognizing them as of specific value. The genus *Staphylus* affords a parallel case.

Alis posticis ciliis albis.

1. **Thanaos funeralis.** (Tab. XCI. figg. 10, 11, 12 ♂ ; 13, 14 ♀.)

Nisoniades funeralis, Scudder & Burgess, Pr. Bost. Soc. N. H. xiii. p. 293, fig. 7¹; Lintner, Thirtieth Rep. State Mus. N. Y. p. 173²; Papilio, iv. p. 144³.

Nisoniades australis, Mab. Compt. Rend. Soc. Ent. Belg. xxvii. p. liv⁴.

Alis nigro-fuscis; anticis indistincte fusco marmoratis, punctis minutis quatuor obliquis a costa prope apicem extendentibus, duobus (nonnunquam uno) ultra cellulam hyalinis; posticis ciliis albidis: subtus alis pallidioribus.

♀. Mari similis, sed alis anticis fusciscentioribus, punctis hyalinis magis conspicuis.

Hab. NORTH AMERICA, California^{2 3}, Arizona, Texas^{1 2 3}.—MEXICO, Ciudad in Durango (*Forrer*), Lake Chapala (*Richardson*), Jalisco (*Schumann*), Tierra Colorada, Acapulco, Chilpancingo (*H. H. Smith*), Atoyac (*Schumann*, *H. H. Smith*), Cordova (*Rümeli*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Polochic Valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*).—COLOMBIA⁴.

Mr. Strecker sent us some time ago two named specimens of *T. funeralis* from Texas, which agree very well with a long series of insects in our collection from Mexico, and we have recently received from Mr. Scudder a typical example of the same species for examination; with these we also associate some examples from Guatemala. *T. funeralis* appears to be rather larger than its other Central-American allies: the primaries are pointed, and it has the snow-white fringe of the secondaries extending to the apex; the costal fold in the male is strong. The insect is peculiarly sombre in appearance, being of a nearly uniform fuscous colour: it has a pale patch on the primaries beyond the cell, which is more apparent in the female; this character is not so marked in other members of the genus.

We have made several dissections of the male genitalia and find our specimens agree with Scudder and Burgess's figures of *T. funeralis*.

The tegumen has two short hooks curved downwards at the points: the left harpe is long and slightly sinuous, and the projection on its upper edge varies somewhat in form. (See Tab. XCI. fig. 12.)

2. *Thanaos tristis*. (Tab. XCI. fig. 15 ♂.)

Thanaos tristis, Boisd. Ann. Soc. Ent. Fr. 1852, p. 311¹.

Nisoniades tristis, Scudder & Burgess, Pr. Bost. Soc. N. H. xiii. p. 303, fig. 15²; Lintner, Thirtieth Rep. State Mus. N. Y. p. 174³.

T. funerali quoad colores similis, structura maris partium genitalium tantum distinguendus.

Hab. NORTH AMERICA, California^{1 2 3}.—MEXICO, Durango city (*Becker*).

We refer a single female from Durango somewhat doubtfully to this species. It agrees exactly with other specimens of the same sex from California in our collection. *T. tristis* is very like *T. funeralis*, but has less pointed primaries, and the male genitalia are differently formed, as may be seen by a comparison of our figures (see Tab. XCI. fig. 15). As we do not possess a male of *T. tristis* from our region we have figured a Californian example.

3. *Thanaos mæstus*, sp. n. (Tab. XCI. fig. 18 ♂.)

T. funerali quoad colores similis, structura maris partium genitalium tantum distinguendus.

Hab. NORTH AMERICA, Arizona.—MEXICO, Pinal, Puebla (*F. D. G. & H. J. Elwes*).

The seven specimens we possess of this species from Puebla we had at first referred to *T. tristis*, Boisdual, but on dissecting two males we found the genitalia so different from those of that insect as figured by Scudder and Burgess, and also from those of a Californian specimen of our own, that we are compelled to separate it. With these we also associate three males received from Fort Grant, Arizona, from Morrison, one of which we have dissected.

The tegumen terminates in two short hooks: the right harpe has its distal portion

long and stout, and obliquely truncate at the end, it is armed on the upper edge at the base with a sharp tooth; the left harpe has its distal portion moderately long and abruptly narrowed from about the middle, it is furnished on the upper edge at the apex with some sharp teeth, and at the base of the distal portion it has a short longitudinal lobe serrated on its upper edge. (See Tab. XCI. fig. 18.)

4. **Thanaos pacuvius.** (Tab. XCI. figg. 16, 17 ♂.)

Nisoniades pacuvius, Lintner, Thirtieth Rep. State Mus. N. Y. p. 172 (1877)¹.

T. funerali quoad colores alarum similis, sed minor, et alis forsan grisescentioribus, posticis ciliis albis ad apicem haud extendentibus, structura maris partium genitalium omnino differt.

Hab. NORTH AMERICA, New Mexico¹.—MEXICO, Northern Sonora (*Morrison*), Bolaños in Jalisco (*Richardson*), Omilteme, Xucumanatlan (*H. H. Smith*).

We refer nine specimens in our collection from Northern, and six from Western Mexico somewhat doubtfully to this species. It was described by Lintner from a single male example from New Mexico, some years later than the publication of Scudder and Burgess's paper. The male genitalia are quite different in form from those of any species of the genus figured by these last-mentioned authors.

T. pacuvius is smaller than *T. funeralis*, and has the primaries less pointed and the white fringe of the secondaries barely reaching to the apex.

Three males have been dissected.

The tegumen terminates in two short hooks: the right harpe is long, tapering, and ciliate; the left harpe is shorter than the right and bears very long fine hairs towards its end, it is rounded at the apex and on its upper edge has an erect dentate lobe some distance before the end. (See Tab. XCI. fig. 17.)

5. **Thanaos albomarginatus**, sp. n. (Tab. XCI. figg. 19, 20, 21 ♂; 22, 23 ♀.)

Nisoniades tristis, Staud. Ex. Schmett. p. 302, t. 100¹ (nec Boisd.).

T. funerali quoque similis, sed posticis subtus albo-marginatis et ciliis albis longioribus facile distinguendus.

Hab. MEXICO, Cordova (*Rümeli*); GUATEMALA¹, Chisoy Valley (*F. D. G. & O. S.*), San Gerónimo (*Champion, F. D. G. & O. S.*); COSTA RICA (*Van Patten*), Irazu (*Rogers*); PANAMA, Chiriqui¹ (*ex Staudinger*), Volcan de Chiriqui (*Arcé*).—COLOMBIA¹.

T. albomarginatus is distinguished from all the other Central-American species of this genus by the white fringe of the secondaries being broader and not extending to the apex, the outer margin also of the secondaries beneath is white.

We have examined the genitalia of four male specimens: the right harpe has the distal portion stout, moderately long, and obliquely truncate at the end; the left harpe has the distal half long and narrow, slightly tapering at the tip, and from its base arises a short curved dentate process. (See Tab. XCI. fig. 21.)

*Alis posticis ciliis griseis.*6. **Thanaos afranius.** (Tab. XCI. figg. 24, 25, 26 ♂.)*Nisoniades afranius*, Lintner, Thirtieth Rep. State Mus. N. Y. p. 175¹.

Alis nigro-fuscis, anticis griseo marmoratis, punctis minutis quatuor obliquis prope apicem a costa extendentibus, et una ultra cellulam, hyalinis; posticis ciliis griseis: subtus alis pallidioribus.

Hab. NORTH AMERICA, Colorado¹, Arizona.—MEXICO, Northern Sonora (*Morrison*).

We have received two specimens of a *Thanaos* from Morrison from Northern Sonora under this name, agreeing with others in our collection from Colorado and Fort Grant, Arizona, which we refer with some doubt to *T. afranius*. This is the only species known to us from within our limits that has not a pure white fringe to the secondaries, and it appears to only just enter Mexico on its northern boundaries. We have dissected two males, one from Colorado and one from Sonora.

The genitalia are extremely like those of *T. persius*, described originally from New England. Possibly *T. persius* and *T. afranius* belong to the same species. Mr. Scudder has kindly sent us a specimen of the former for examination.

The tegumen has at its extremity a pair of long curved hooks: the right harpe terminates in a long and slender piece; the left ends similarly, but bears a curved projection on the upper edge some distance from the apex. (See Tab. XCI. fig. 26.)

THEAGENES (p. 428).

The following species were accidentally omitted when dealing with this genus. They agree with *T. ægiades* and *T. albiplaga* in having a costal fold and porrect palpi, and in the general form of the wings, except that the secondaries have a dentate margin. The harpes, however, are almost symmetrical.

Helias noctua and *H. hæmatospila*, Felder, of Tropical South America are allied forms.

2. **Theagenes lactifera.** (Tab. XCI. figg. 30, 31, 32 ♂.)*Helias lactifera*, Butl. & Druce, Cist. Ent. i. p. 115¹.

Alis saturate brunneo-fuscis, anticis maculis irregulariter nigricantibus, punctis elongatis duobus aut tribus in linea obliqua subapicalibus, hyalinis; posticis fascia transversa pilis griseis tecta, marginem internum versus latiore, albida: subtus brunneis; anticis fascia valde irregulari ultra cellulam fulvescente, maculis ferrugineis frequenter irroratis.

♀ mari similis, sed supra posticis fascia albida latiore: subtus alis obscurioribus.

Hab. MEXICO, Soledad (*H. H. Smith*), Atoyac (*Schumann*), Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Cordova (*Rümeli*); GUATEMALA, Choctum, Polochic Valley, San Gerónimo (*F. D. G. & O. S.*), Chilasco, Panama (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*¹), Caché, R. Sucio, San Francisco (*Rogers*); PANAMA, Chiriqui, Veraguas (*Arcé*).

Messrs. Butler and Druce described this species from a single female example sent by Van Patten from Costa Rica, and we have since received a considerable series of it from various localities ranging from Mexico to Panama. In Colombia and Venezuela its place appears to be taken by *Helias noctua*, described and figured by Felder in the Voyage of the 'Novara.' *H. noctua*, however, may readily be distinguished by the inner margins of the secondaries beneath being marked with greyish-white.

The male genitalia have a long slender tapering tegumen, which is curved downwards and is blunt at the tip: the harpes are short and broad, divided into two overlapping lobes of nearly equal width; they are formed almost exactly as in *T. noctua*. (See Tab. XCI. fig. 32.)

3. *Theagenes stator*, sp. n. (Tab. XCI. figg. 33, 34, 35 ♂.)

Alis griseo-fuscis, maculis velutinis nigris marmoratis; anticis punctis duobus in costa subapicalibus hyalinis: subtus fuscis, anticis maculis parvis ad apicem, posticis præsertim in dimidio distali rufo-fulvis.

♀ mari similis.

Hab. MEXICO, Amula (*H. H. Smith*), Misantla (*F. D. G.*), Cordova (*Rümeli*), Orizaba (*H. H. Smith & F. D. G.*), Atoyac (*H. H. Smith & Schumann*), Fortin, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Forests of Northern Vera Paz, Chisoy Valley, Polochic Valley, San Gerónimo (*F. D. G. & O. S.*), Cahabon, Panima, Chilasco, Dueñas (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui, Veraguas (*Arcé*).—PERU.

We have several specimens in our collection from Colombia and Venezuela agreeing with Felder's *T. hæmatospila* as figured in the Voyage of the 'Novara,' and we had placed our Central-American insects, of which we have upwards of thirty, with them. On a closer examination, however, we find that the red spots on the apex of the primaries and on the secondaries beneath, of the Venezuelan and Colombian insects, are so much larger and brighter in colour that there is no difficulty in distinguishing the two forms. Moreover, the costal fold on the primaries of the males, which, though small in *T. stator*, is always present, appears to be absent in all our examples of *T. hæmatospila*. We also notice that the outer margin of the secondaries is more dentate in *T. stator*. The genitalia of the two species are nevertheless almost exactly alike, thereby showing their close relationship. Hence we think our Central-American insect requires the distinguishing name we have bestowed upon it.

Dr. Staudinger has sent us two male specimens from Peru which have small spots on the underside and likewise a distinct costal fold, and we therefore associate them with *T. stator*.

In the British Museum there are two examples under the name of *T. hæmatospila*, one with large red spots, the other with small spots and similar in marking to *T. stator*, both said to have been procured by Dyson in Venezuela. The Hewitson collection

includes two of the large-spotted form, and without a costal fold, from Ecuador, but unfortunately there is no precise locality indicated.

The male genitalia are very similar to those of *T. lactifera*, but the inner portion of the upper lobe of the right harpe is narrower and longer compared with that of *T. stator* or *T. hæmatospila*; the inner portion of the lower lobe of the right harpe is much shorter and differently shaped. (See Tab. XCI. fig. 35.)

Subfam. *PAMPHILINÆ* *.

Pamphilinæ, Watson, P. Z. S. 1893, pp. 9, 69.

The chief characters of this subfamily, as given by Watson, were noticed on pp. 244, 245. It must be observed, however, that his work on the American Pamphilinæ was perforce very hurried and incomplete, on account of the limited time remaining at his disposal before leaving England for foreign service. No attempt was made by him to deal with the Pamphilinæ as a whole, not even of those in the British Museum. Descriptions of a certain number of genera, for which Hübnerian and other names were available, were given, and a type mentioned, but little more. We are therefore correct in stating that no serious attempt has hitherto been made to deal with the Tropical-American members of this subfamily, and our work here is, of course, almost entirely limited to the insects inhabiting the region at present under investigation. After a prolonged study of our abundant material, we have quite failed to find any satisfactory method of grouping the very numerous species into genera by the neuration of the wings alone. We have therefore been compelled to place a considerable amount of reliance upon the form and position of the brand on the primaries, when present, in the males, as, indeed, has already been done by Scudder and Watson, for generic separation. This secondary sexual character has helped us to group many species, and their real affinity has often been proved by a similarity of structure of the male genitalia, when examined. In three or four genera, *Calpodes*, &c., the cell of the primaries is fully two-thirds the length of the costa. The lower radial nervure of these wings is nearly always depressed at its point of origin, except in some few genera belonging to Groups I., II., and VII., in which the discocellulars are nearly equal and also more transverse than usual. The brands, it must be noted, are sometimes covered by the larger scales, and cannot always be properly seen till these are removed. We intend to figure, where necessary, the fore wing denuded of scales, to show the exact shape and position of these brands, this character being of paramount importance for the identification of many closely allied similarly-coloured species. The hind tibiæ, except in three genera only, have two pairs of spurs. The form of the male genitalia has helped us to separate many obscure species, as well as to identify various worn specimens, and we have, as in the Hesperiinæ,

* At Mr. Salvin's death we had almost finished our enumeration of the Hesperiinæ, but had done very little jointly with the Pamphilinæ: the latter will now be completed by myself.—F. D. G.

dissected (and photographed) one or more examples of each of the species for figuring. Watson adopted ninety-eight genera of this subfamily (leaving twenty-six unidentified), though only one new genus was proposed by him for American forms, to include about 384 species. An equally large number are required for the Central-American species, about 240 of which are known to us, very many of them being isolated forms. The genera here enumerated include altogether about 100 species in addition to those occurring within our limits. As Watson referred nearly the whole of the American Pamphilinæ to one group, B, his scheme of arrangement of the genera will not help us much, though we have followed him in placing the species with short antennæ first, the largest and most conspicuous forms, most of which have very long antennæ, thus coming last. We have, for convenience, arranged the Central-American Pamphilinæ into eight groups, based chiefly on the structure of the antennæ and palpi; but it must be observed that they are of very unequal extent, and that groups VI.–VIII., which include by far the greater number of species, are connected by intermediate forms.

I. Antennæ with an arcuate, gradually acuminate club; terminal joint of the palpi moderately long, porrect; primaries of the male without a brand.

This group includes *Butleria* and *Pamphila*, the first mentioned having two pairs of spurs to the hind tibiæ, the latter a single pair only. It corresponds, as regards the American genera, to Watson's section A, less *Amblyscirtes*, which belongs to our group VI.

II. Antennæ very short, with a straight, or slightly curved, blunt club; terminal joint of the palpi long and erect; hind tibiæ with two pairs of spurs.

This group includes *Apauustus*, *Oarisma*, *Adopæoides* (type, *Ancyloxypha simplex*, Feld.), *Ancyloxypha*, and *Copæodes*, the last-mentioned genus alone having a brand on the primaries in the male.

III. Antennæ very short, with a stout, slightly pointed club; terminal joint of the palpi short; primaries of the male branded; hind tibiæ with two pairs of spurs.

This group includes *Chærephon* (type, *Pamphila citrus*, Mab.), *Hylephila*, and *Erynnis*.

IV. Antennæ short, with a stout club, terminating in a short crook; terminal joint of the palpi short; hind tibiæ with two pairs of spurs; primaries of the male with a greatly developed brand.

This group includes *Atalopedes*, *Thymelicus*, *Catia* (type, *Hesperia druryi*, Latr.), *Ochlodes*, and *Augiades*.

V. Antennæ short, with a rather slender club, terminating in a short crook; terminal joint of the palpi short; hind tibiæ with a single pair of spurs; primaries of the male without a brand.

This group includes a single genus only, *Zariaspes* (type, *Urbanus mys*, Hübn.).

VI. Antennæ short, with a stout or moderately stout club, terminating in a short crook; terminal joint of the palpi short or moderately short*; hind tibiæ with two pairs of spurs; primaries of the male with or without a brand, the latter, when present, moderately developed or inconspicuous.

Numerous genera belong here, as *Phycanassa*, *Atrytone*, *Lerodea*, *Amblyscirtes*, *Stomyles*, &c.

* Longer in some species of *Stomyles*.

In certain species of *Atrytone* and *Paratrytone* the costa of the secondaries is clothed at the base with long projecting hairs, which have somewhat the appearance of a frenulum.

VII. Antennæ moderately long *, with a long crook ; hind tibiæ with two pairs of spurs ; primaries of the male with or without a brand.

This group includes the great majority of the American Pamphilinæ. For convenience, it may be divided into two sections : (A) Terminal joint of the palpi short or moderately short ; (B) Terminal joint of the palpi long and erect, quite slender in some of the genera, stouter in others. Section A includes *Calpodes*, *Prenes*, *Aides*, *Niconiades*, *Cobalus*, *Phemiades*, *Lerema*, *Phlebodes*, *Padraona*, *Carystus*, *Cœliades*, and many others ; section B, *Cymænes*, *Callimormus*, &c. In some of the genera of this group the discocellulars of the primaries are subequal in length, as in *Butleria*, *Pamphila*, &c.

VIII. Antennæ very long †, usually at least two-thirds the length of the costa, with an elongate club, terminating in a very long crook ; terminal joint of the palpi short (except in *Falga*) ; primaries of the male with or without a brand.

This group includes a variety of forms, some with slender bodies, as *Falga* and *Enosis*, others with a robust body, as *Thracides*, *Talides*, *Perichares*, &c. The hind tibiæ have two pairs of spurs, except in the genus *Carystoides* (type, *Hesperia basochesi*, Latr.), which has one pair only. In one genus, *Orses* (type, *Hesperia cynisca*, Swains.), the neurulation of the primaries, as well as the system of coloration, is different in the two sexes. The largest and most conspicuous representatives of the Tropical-American Pamphilinæ belong here ; some of them closely resemble various species of the subfamily Pyrrhopyginæ.

I. Antennæ with an arcuate, gradually acuminate club ; terminal joint of the palpi moderately long, porrect ; primaries of the male without a brand.

A. Posterior tibiæ with two pairs of spurs.

BUTLERIA.

Butleria, Kirby, Syn. Cat. Diurn. Lep. p. 624 (1871) ; Watson, P. Z. S. 1893, p. 79.

Watson includes numerous American species under *Butleria*, and gives *B. valdivianus* (Phil.) as the type. Amongst these there is considerable variation in the length of the terminal joint of the palpi, which is long in *B. valdivianus*, and short and stout in *B. epiphaneus*, Feld., but between these there are intermediate forms.

The antennæ are rather short, and have a moderately stout, arcuate, acuminate club. The primaries have the costa arched at the base and then straight to the apex ; the cell is a little less than two-thirds the length of the costa ; the discocellulars are equal in length and transverse ; the lower radial is straight ; the first branch arises before the middle of the median nervure, the second close to the lower angle of the cell, the latter being somewhat curved outward. The secondaries are rounded at the anal angle ; the cell is broad and more than half the length of the wing ; the discocellulars are transverse,

* Short in some species of *Prenes*, and very long in *Thargella*, *Cœliades*, and certain species of *Rhithon* (type, *Proteides chiriquensis*, Mab.).

† Shorter in *Pyrrhopygopsis* (type, *Pyrrhopyga socrates*, Mén.).

equal, and only just traceable. The hind tibiæ have two pairs of spurs. The males are without a brand on the primaries.

This is an American genus, the species ranging from Mexico to Chili.

a'. Wings with distinct minute white spots.

1. **Butleria microsticta**, sp. n. (Tab. XCII. figg. 1, 2, ♀; 3, ♂.)

Alis fuscis, anticis punctis quatuor aut sex minutis albis, posticis immaculatis: subtus ut supra, sed squamis pallidis dispersis; anticis margine interno late albidis, punctis (præsertim in posticis) minoribus et magis obviis.

♀ mari similis, sed posticis punctis discalibus quatuor aut quinque ornatis.

Hab. MEXICO, Chilpancingo, Amula, Venta de Zopilote in Guerrero (*H. H. Smith*).

Mr. Herbert Smith sent us six examples of this small species, all captured in Guerrero, Western Mexico, at an altitude of from 2800 to 6000 feet. *B. microsticta* is nearly allied to *B. anomala*, which it closely resembles on the upperside, but it may at once be distinguished from that insect by the underside of the secondaries being brown, with white spots, instead of grey, as well as by its smaller size. For the genitalia of the male, see Tab. XCII. fig. 3.

2. **Butleria anomala**. (*B. leucospila*, Tab. XCII. figg. 4, 5, 6, ♂.)

Achlyodes (?) *anomala*, Mab. Le Nat. 1889, p. 239, fig.¹

Alis fuscis, anticis punctis septem aut octo, uno in cellula, duobus infra eam, aliis tribus marginem externum propioribus; posticis punctis minutis duobus aut tribus discalibus (nonnunquam fere obsoletis): subtus anticis fuscis, punctis ut supra, anticis apicibus et posticis omnino squamis pallide griseis tectis.

♀ mari similis, sed maculis magis distinctis.

Hab. MEXICO (*mus. Staudinger*¹), Omilteme (*H. H. Smith*), Bolaños (*Richardson*).

This is likewise an inhabitant of Western Mexico, where most of our specimens were captured by Mr. Herbert Smith at an elevation of about 8000 feet. Our insects have the apex of the primaries and the whole of the secondaries densely clothed with grey scales beneath, these being scarcely visible in the worn type. The genitalia of the male are very like those of *B. microsticta*, except that the lower lobe of the harpes has a serrated apex, instead of two sharp teeth. (See Tab. XCII. fig. 6.)

3. **Butleria ceracates**.

Cyclopides ceracates, Hew. Exot. Butt., *Cyclopides*, ff. 6, 7¹.

♀. Alis fuscis, anticis maculis quatuor discalibus, una in cellula, duabus inter ramos medianos primum et secundum, quarta ultra eas inter ramos secundum et tertium, punctisque tribus in linea transversa subapicalibus (ea in medio minuta), albo-hyalinis; posticis macula parva ad cellulæ finem aliisque quatuor ultra eam in serie margini externo subparallelibus hyalinis: subtus ut supra, sed dilutiore, anticis, costa, apice, et margine externo, posticisque omnino squamis ochraceis dense vestitis; posticis linea angusta recta a basi ad marginem externum juxta angulum analem extensa argentea; ciliis ochraceis.

Hab. MEXICO¹ (*coll. Hewitson, in Mus. Brit.*).

The type of this species is a female, and it is the only example we have seen.

b'. Wings with very indistinct minute white spots.

4. *Butleria brunnea*.

♀. *Ancyloxypha brunnea*, Scudd. Rep. Peabody Ac. Sci. iv. p. 74 (1872)¹.

Alis fuscis, anticis punctis duobus minutissimis, uno ultra cellulam, altero inter ramos medianos secundum et tertium, albo-hyalinis: subtus ut supra, sed anticis margine interno pallidiore, punctis aliis duobus, uno inter ramos medianos primum et secundum, altero in regione costali apicem versus.

♀ mari similis.

Hab. GUATEMALA¹, Dueñas (*Champion*).

We have a single male of this insect, agreeing with the mutilated type, a female, now before us. It agrees perfectly with *Butleria* in the neuration of the primaries, as well as in the structure of the antennæ, so that we have no hesitation in referring the species to this genus. The very minute white spots on the primaries are not easily seen in the type, owing to its abraded condition.

Mr. Richardson has sent us a worn specimen of a nearly allied form from Matagalpa, Nicaragua, but it is too imperfect to describe.

c'. Wings with large orange or flavous spots.

5. *Butleria pulchra*, sp. n. (Tab. XCII. figg. 7, 8, ♂.)

Alis fuscis, anticis maculis parvis quatuor discalibus (una infra cellulam triangularem), linea obliqua subapicali venis divisa, flavis; posticis maculis duabus conjunctis marginem externum versus, tertia minuta interiori, aurantiis: subtus fulvis, anticis maculis ut supra et margine interno late flavis, fascia lata a basi ad marginem externum extendente (maculis exceptis) fusca; posticis maculis paginæ superioris fere obsoletis; ciliis posticarum aurantiis.

Hab. COSTA RICA, Irazu (*Rogers*).

This pretty species is also represented in our collection by a single male example, captured by Mr. Rogers on the slopes of the Volcano of Irazu. It approaches *B. agathocles* (Felder), from South America, in the disposition of the spots.

6. *Butleria eryonas*. (Tab. XCII. figg. 9, 10, 11, ♂.)

Cyclopides eryonas, Hew. Ann. & Mag. Nat. Hist. (4) xx. p. 325 (1877)¹.

Butleria dolabella, Plötz, Stett. ent. Zeit. 1884, p. 292².

Alis fuscis, anticis macula magna subquadrata inter ramos medianos primum et secundum, una minore in cellula triangularem, tertia margini externo propiore, punctisque duobus (superiore minuto) subapicalibus in linea transversa, hyalinis; posticis macula magna discali ovali ad cellulæ finem, flava: subtus fuscis, maculis omnibus paginæ superioris multo majoribus; anticis ad apicem fascia transversa venis divisa, flava; posticis, costa ad basin, apice, et maculis tribus ad marginem externum flavis.

♀ nobis ignota.

Hab. PANAMA, Chiriqui² (*ex Staudinger, Ribbe*¹), Veraguas (*Arcé*).

There are two specimens of this species in the Hewitson collection, both males, and we have three others of the same sex from the State of Panama, one of these latter having been sent us by Dr. Staudinger under the MS. name of *B. fimbriola*. For the genitalia of the male, see Tab. XCII. fig. 11.

7. **Butleria lalage**, sp. n. (Tab. XCII. figg. 12, 13, ♂.)

Alis fuscis, anticis macula subtriangulari discali ad marginem externum dentata, altera obliqua minore subapicali et posticis plaga subovali discali, aurantiis: subtus aurantio-flavis, anticis plaga basali haud costam attingente, fascia lata curvata irregulari marginem externum versus, fuscis; ciliis posticarum flavis; subtus, palpis, thorace et abdomine pallide flavis.

Hab. MEXICO, Omilteme (*H. H. Smith*).

Mr. Smith procured us a single male example only of this species, from the neighbourhood of Omilteme, in Guerrero, from an altitude of 8000 feet. We possess an unnamed *Butleria* from Rio Janeiro which somewhat approaches it, but this insect has no subapical spot on the primaries.

8. **Butleria octomaculata**, sp. n. (Tab. XCII. figg. 14, 15, ♂.)

Alis fuscis, anticis macula obliqua discali cellulam transeunte, altera minuta marginem propiore, tertia venis divisa subapicali, posticis subrotunda discali, omnibus pallide flavis: subtus fere ut supra, anticis macula discali literam V formante, posticis macula parva angulum analem versus, pallide flavis.

Hab. COSTA RICA, Irazu (*Rogers*).

We have but a single male example of *B. octomaculata*, sent us by our collector Mr. Rogers, from Irazu, where he captured it at an altitude of between 6000 and 7000 feet. It is allied to *B. cupavia*, Staud., from Bolivia.

9. **Butleria faula**, sp. n. (Tab. XCII. figg. 16, 17, ♂.)

Alis fuscis, macula subtriangulari discali ad marginem externum dentata, altera obliqua minore subapicali, et posticis macula elongata discali, secunda minuta infra eam et fere attingente, omnibus aurantiis: subtus aurantiis, anticis plaga basali haud ad costam extendente, fascia lata curvata irregulari marginem externum versus, fuscis; posticis obscure aurantiis, margine interno lato, fascia elongata per cellulam fasciolisque inter venas ad marginem externum, flavis; ciliis posticarum coloris ejusdem.

Hab. MEXICO, Guadalajara (*coll. Schaus*).

Mr. Schaus's collection contains a single male example of this species, from which the above description is taken. It is a close ally of *B. lalage*, but differs from it chiefly in having a long, narrow, discal band on the secondaries above and the underside of these wings otherwise coloured. *B. faula* is also very like *B. eryonas*, Hew., on the upperside, but differs considerably beneath.

B. Posterior tibiæ with a single pair of spurs.

PAMPHILA.

Pamphila, Fabricius, in Illiger's Mag. vi. p. 287 (1807); Watson, P. Z. S. 1893, p. 89.

Steropes, Boisduval, Voy. Astrolabe, Lép. p. 167 (1832).

Carterocephalus, Lederer, Verh. zool.-bot. Ges. Wien, ii. pp. 26, 49 (1853).

Watson restricts this genus to a few Palæarctic and Nearctic species. *Cyclopides*

dardaris, Hew., from Mexico, and a closely allied form from Brazil *, also belong to it. The type is *P. palæmon*, Pall.

The antennæ are short, with a rather stout, elongate, curved, slightly pointed club. The palpi are porrect, the third joint bluntly conical and almost hidden by the long hairs on the second joint. The primaries have the cell less than two-thirds the length of the costa; the discocellulars are transverse and almost equal; the lower radial is straight; the first branch arises considerably before the middle of the median nervure, the second close to the lower angle of the cell, the second median segment thus being very elongate. The secondaries are rounded at the anal angle; the cell is broad and more than half the length of the wing; the discocellulars are transverse, equal, and very faint. The hind tibiæ have only a single pair of spurs. There is no brand on the primaries in the male.

1. *Pamphila dardaris*. (Tab. XCII. figg. 18-21, ♂.)

Cycloides dardaris, Hew. Ann. & Mag. Nat. Hist. (4) xx. p. 328¹.

Alis fuscis, macula ad cellulæ finem, altera infra eam et ab ea vena mediana tantum divisa, puncto minutissimo exteriori, tribus in linea transversa (nonnunquam obsoletis) subapicalibus, et posticis maculis duabus discalibus, omnibus albis: subtus ut supra, sed dilutioribus, anticis margine interno late albidis, squamis in costam flavidis; posticis maculis tessellatis; anticis et posticis linea marginali interne flava serratis.

♀ mari similis.

Hab. MEXICO¹, Chilpancingo, Tierra Colorada, Venta de Zopilote, Rio Papagaio (*H. H. Smith*), Guadalajara (*coll. Schaus*).

Mr. Smith has sent us a long series of examples of this species from Western Mexico, and we possess three others not labelled with any exact locality. All, with one exception, are males. For the genitalia, see Tab. XCII. fig. 21.

* *Pamphila daridæus*, sp. n.

P. dardari similis, sed anticis punctis tribus in linea transversa majoribus, maculis duabus minutis margini externo subparallelibus, aliisque plus minusve indistinctis in regione submediana, omnibus albis: subtus anticis fere ut in *P. dardari*; posticis grisescentioribus, maculis albis minus distinctis, maculis variis discalibus aliisque in serie submarginali haud ad angulum analem extensis, nigris.

♀ mari similis

Hab. BRAZIL, Corumba (*H. H. Smith*).

P. daridæus differs from our Mexican insect in having a larger number of spots on the primaries, the secondaries beneath are greyer, the white spots not so apparent, and the disc is marked with some scattered black spots.

II. Antennæ very short, with a straight, or slightly curved, blunt club; terminal joint of the palpi long and erect; hind tibiæ with two pairs of spurs.

A. Primaries without a brand in the male.

APAUSTUS.

Apaustus, Hübner, Verz. bek. Schmett. p. 113 (1816); Watson, P. Z. S. 1893, p. 96.

Watson gives *Papilio menes*, Cram., as the type of this genus, and he also includes in it *Ancyloxypha gracilis*, Feld.; this latter, however, has very differently formed antennæ and does not belong here. These two insects, as well as some other Tropical-American forms, have the nervures on the underside of the secondaries, and also those on the costa and apex of the primaries, yellow.

The antennæ are very short, less than half the length of the costa, with a moderately stout blunt club. The palpi have a very long, erect, and slender third joint. The primaries are elongate, blunt at the tip; the cell is about three-fifths the length of the costa; the discocellulars are oblique, the lower one being much shorter than the upper; the lower radial is depressed at the base; the first branch arises far beyond the middle of the median nervure, the second from the lower angle of the cell; the third median segment is very short and almost in a line with the lower discocellular. The secondaries are narrow; the discocellulars are very faint. The body is long and slender, the abdomen extending far beyond the anal angle of the hind wings. The hind tibiæ have two pairs of spurs. The primaries are without a brand in the male.

A. menes just enters our southern limits. This insect is easily recognized by its long narrow wings and short antennæ; it is doubtless of feeble flight.

1. *Apaustus menes*. (Tab. XCII. fig. 22, ♂.)

Papilio menes, Cram. Pap. Exot. t. 393. ff. H, I¹; Stoll, Suppl. Cram. Pap. Exot. t. 7. ff. 6 F, G²; Sepp, Surin. Vlind. i. t. 47³.

Apaustus menes, Wats. P. Z. S. 1893, p. 96⁴.

Alis fuscis, anticis linea angusta costali ad basin aliisque tribus apicalibus flavis: subtus ut supra, sed dilutioribus; anticis lineis radiantibus variis apicalibus, angulum analem versus brevissimis, posticisque lineis venas sequentibus, omnibus flavis; abdomine subtus albido.

♀ mari similis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).—COLOMBIA; GUIANA¹⁻³; AMAZONS; BRAZIL.

Of this peculiar species there is a single specimen from Chiriqui in Dr. Staudinger's collection, and we therefore include it in our fauna. We have no doubt that the example figured by Cramer was in bad condition, as noted by Sepp, who states that the larva feeds upon the rice-plant (*Oryza sativa*). For the genitalia of the male, see Tab. XCII. fig. 22.

OARISMA.

Oarisma, Scudder, Rep. Peab. Ac. Sci. iv. p. 75 (1872); Butt. E. U. S. & Can. iii. p. 1858 (1889).

This American genus, which was not identified by Watson, is easily recognizable by the peculiarly formed antennæ and the somewhat triangular primaries.

The antennæ are very short, much less than half the length of the costa, with a long, straight, gradually thickening club, which is quite blunt at the tip. The palpi have the second joint clothed with long hairs, and the third is long, slender, and erect. The primaries are short and broad, somewhat truncate at the outer margin; the cell is a little less than two-thirds the length of the costa; the discocellulars are oblique, the lower one being much shorter than the upper; the first branch arises about the middle of the median nervure, the second at some little distance before the lower angle of the cell; the third median segment is more than twice the length of the lower discocellular. The secondaries have the discocellulars barely traceable. The body is rather slender and the head large, the abdomen extending beyond the anal angle of the hind wings. The hind tibiæ have two pairs of spurs. The primaries are without a brand in the male.

Oarisma differs from *Adopæoides* (type, *Ancyloxypha simplex*, Feld.) in the longer and straighter antennal club, which is quite blunt at the tip, and from *Adopæa* in the absence of the brand in the male and the longer third median segment of the primaries; and from both in the blunt and comparatively short wings. The genitalia of the males of the two species are very similarly formed and quite different in structure from those of either *Adopæa* or *Adopæoides*.

The two species belonging to it inhabit Mexico and the Southern United States.

1. ***Oarisma powesheik*.** (*Paradopæa garita**, Tab. XCII. figg. 23, 24, 25, ♂.)

Hesperia powesheik, Park. Am. Ent. ii. p. 271 (1870)¹.

Oarisma powesheik, Scudd. Rep. Peab. Ac. Sci. iv. p. 75²; Butt. E. U. S. & Can. iii. p. 1859³.

Thymelicus powesheik, French, Butt. E. U. S. p. 301⁴.

Alis obscure et nitide fulvis, ciliis et costa posticarum fuscis: subtus anticis fulvis, striga lata a basi in margine interno ad angulum analem extendente, fusca; posticis flavo-griseis, margine interno late fulvo; ciliis nisi ad angulum analem interne albis.

♀ mari similis, sed alis obscurioribus.

Hab. NORTH AMERICA, Dakota¹, Illinois³, Iowa^{1 2 3}, Nebraska^{1 3}, Montana³, Colorado³, Arizona.—MEXICO, Northern Sonora (*Morrison*), Puebla 7000 feet (*H. J. Elwes*).

Only two males of *O. powesheik* have yet reached us from within our limits, though in the Southern United States it appears to be by no means uncommon. The Sonora example agrees well with others from Colorado and Montana in our collection; that from Puebla is rather less fuscous along the inner margin of the primaries beneath.

* Scudder's description of the genus *Oarisma* was not seen by us till after Tab. XCII. was printed, and the specimens sent us by Strecker as *Hesperia garita* were wrongly named; hence confusion has arisen in the identification of this insect.

Our figure is taken from a male from Montana, the Mexican examples not being in a good state of preservation. The genitalia are also figured (Tab. XCII. fig. 25) from a North-American specimen.

2. **Oarisma garita.** (*Paradopæa calega*, Tab. XCII. figg. 26–29, ♂.)

Hesperia garita, Reak. Proc. Ent. Soc. Phil. vi. p. 150¹; Strecker, Lep. Rhop.-Het. p. 93².

Thymelicus hylax, W. H. Edwards, Trans. Am. Ent. Soc. iii. p. 274³.

Adopæa hylax, Watson, P. Z. S. 1893, p. 98⁴.

Alis fuscis, squamis fulvis sparsim tectis: subtus anticis fulvis, marginem internum versus late fuscis; posticis fuscis, squamis flavis dense tectis, margine interno late fulvo; ciliis nisi ad angulum analem introrsum albis.

♀ mari similis.

Hab. NORTH AMERICA, Colorado^{1 3}.—MEXICO, Ciudad and Milpas in Durango (*Forrer*).

Mr. Forrer has sent us five specimens of *O. garita* from the highlands of North-western Mexico. It is a close ally of *O. powesheik*, but is of smaller size; the wings are shorter, and it is of a darker colour. For the genitalia of the male, see Tab. XCII. fig. 29.

ADOPÆOIDES, gen. nov.

To this genus we refer two Mexican species, *Ancyloxypha simplex*, Felder, being taken as the type. It is closely allied to *Adopæa*, under which Watson includes seven species; the three American ones, however, belong elsewhere.

The antennæ are short, not half the length of the costa; the club stout, moderately elongate, slightly curved and blunt at the tip. The palpi have the second joint thickly clothed with long hairs; the third joint is long, slender, and erect. The primaries are rather blunt at the apex; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the lower one being very much shorter than the upper; the lower radial is depressed at the base; the first branch arises a little beyond the middle of the median nervure, the second immediately before the lower angle of the cell; the third median segment is extremely short, much shorter than the lower discocellular. The secondaries have the discocellulars barely traceable. The body is rather slender. The hind tibiæ have two pairs of spurs. The primaries are without a brand in the male.

Adopæoides differs from *Adopæa* in having a less elongate club to the antennæ; the first median branch of the primaries arises in both sexes from nearer the lower angle of the cell, so that the second median segment is shorter, and there is no brand in the male; it may be noted also that in this sex the genitalia are very differently formed.

1. **Adopæoides simplex.** (Tab. XCII. figg. 30–33, ♂.)

Ancyloxypha simplex, Feld. Verh. zool.-bot. Ges. Wien, 1869, p. 476¹.

Apaustus simplex, Plötz, Stett. ent. Zeit. 1884, p. 166².

Alis nitide fulvis, marginibus externis et venis eos attingentibus fuscis; anticis linea discocellulari, posticis costa

et margine interno quoque fuscis: subtus anticis fulvis, apice flavescenti, striga lata in margine interno a basi angulum analem versus fusca; posticis flavis, linea (interdum secunda marginem internum versus) a basi ad marginem externum extendente pallidiore.

♀ mari similis, sed alis obscurioribus.

Hab. MEXICO^{1 2} (*mus. Staudinger*), Ciudad and Milpas in Durango (*Forrer*), Amula in Guerrero, Mexico city (*H. H. Smith*), Puebla, Orizaba (*H. J. Elwes*), Potrero, Cordova (*fide Felder*).

So far as we know, this species is confined to Mexico, whence we possess a considerable series. The secondaries of some examples show one or two pale longitudinal streaks beneath, while in others these are almost or entirely wanting. The primaries usually have a short transverse blackish line at the end of the cell on the upperside. *A. simplex* bears a strong superficial resemblance to the European *Adopæa linea*, but the males have no band on the primaries. Mr. Rothschild informs us that Felder's type cannot now be found. For the genitalia of the male, see Tab. XCII. fig. 33.

2. *Adopæoides bistriata*, sp. n. (Tab. XCII. fig. 34, ♀.)

♀. Alis fuscis, squamis fulvis sparsim tectis, linea discocellulari nigrescente: subtus anticis fulvis, marginem internum versus late fuscis; posticis fuscis, squamis flavis sparsim tectis, lineis duabus a basi ad marginem externum extendentibus.

Hab. MEXICO, Milpas in Durango (*Forrer*).

Of this insect we possess only a single female example. It closely resembles *Oarisma powesheik*, but may be readily distinguished from it by the two white longitudinal stripes on the secondaries beneath. The underside of the fringe, moreover, is not bordered internally with white as in that species, and the primaries above have a dark discocellular line.

Hesperia boeta, Hew., = *Apaustes bilineata*, Dognin, from Ecuador, has the secondaries similarly coloured beneath, but we hesitate to place our Mexican female with that species.

ANCYLOXYPHA.

Ancyloxypha, Felder, Verh. zool.-bot. Ges. Wien, xii. p. 477 (1862) (part.); Watson, P. Z. S. 1893, p. 97.

The type of this genus is the North-American *Hesperia numitor* (Fabr.) (= *Thymelicus puer*, Hübn.); and *Heteropterus arene*, Edw. (= *Copæodes myrtis*, Edw.), is also an *Ancyloxypha*. *A. melanoneura*, Felder, is perfectly congeneric with these, but his *A. simplex*, *A. gracilis*, and *A. corades* belong elsewhere. *A. brunnea*, Scudd., from Guatemala, as already stated, is a *Butleria*.

The antennæ are very short, not half the length of the costa, with a moderately stout, blunt club. The palpi have a long, slender, erect third joint. The primaries are short, blunt at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are subtransverse, the lower one a little shorter than the

upper; the lower radial is very slightly depressed at the base; the first branch arises far beyond the middle of the median nervure, the second at the lower angle of the cell; the third median segment is very short and almost in a line with the discocellulars. The secondaries are rounded at the anal angle; the discocellulars are very faint. The abdomen is long and slender, extending beyond the anal angle of the secondaries. The hind tibiæ have two pairs of spurs. The primaries are without trace of a band in the male.

The genus is confined to the New World, ranging from the Southern United States to Peru. *A. arene* is widely distributed in Tropical America, extending northwards to a little beyond our frontier.

1. **Ancyloxypha arene.** (*A. myrtis*, Tab. XCII. figg. 35-38, ♂.)

Heteropterus arene, W. H. Edwards, Trans. Am. Ent. Soc. iii. p. 214 (1871)¹.

Thymelicus arene, Scudd. Rep. Peabody Ac. Sci. iv. p. 75 (1872)².

Copæodes myrtis, W. H. Edwards, Papilio, ii. p. 26 (1882)³.

Apaustus leporina, Plötz, Stett. ent. Zeit. 1884, p. 166⁴.

Alis nitide fulvis, anticis margine externo, posticis margine costali late, et margine exteriori anguste, fuscis; anticis fascia infra cellulam marginem externum versus extendente et linea discocellulari (nonnunquam absente) quoque fuscis: subtus fulvis, anticis ad apicem et posticis omnino flavescentibus, margine interno anticarum late fusca, angulum analem haud extendente.

♀ mari similis, sed anticis margine externo et interno late fuscis, cellula plus aut minus fuscescente.

Hab. NORTH AMERICA, Arizona^{1 2 3}.—MEXICO^{2 4}, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Colima (*mus. Staudinger*), Puebla (*Elwes*), Sierra Madre de Tepic (*Richardson*), Rio Papagaio, Tierra Colorada, Venta de Zopilote, Dos Arroyos, and Omilteme in Guerrero, Cuernavaca in Morelos, Fortin in Vera Cruz, Mexico city (*H. H. Smith*), Orizaba (*H. H. Smith*, *Elwes*, *F. D. G.*), Morelia, Misantla (*F. D. G.*), Atoyac (*Schumann*, *H. H. Smith*), Coatepec (*coll. Schaus*), Jalapa (*F. D. G.*, *M. Trujillo*, *coll. Schaus*); GUATEMALA², Polochic Valley (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*F. D. G.*, *O. S.*, *Champion*), Guatemala city (*Champion*); COSTA RICA, San Francisco, Caché, Irazu (*Rogers*).—VENEZUELA; PERU.

This is a common insect in our country, just entering the Southern United States in Arizona, and extending southwards to Peru; it also has a considerable range in altitude, since we have specimens from the hot Polochic Valley and from elevations of 9000 feet in Mexico.

The fuscous coloration on the upperside of the primaries varies in extent, the streak at the end of the cell being often obsolete in the male. The females are considerably darker, the cell being sometimes entirely fuscous in this sex.

The present species is a very close ally of the Colombian *A. melanoneura*, Felder, the type of which we have seen, but differs in the absence of the dark streaks above and the uniformly pale secondaries beneath. For the genitalia of the male, see Tab. XCII. fig. 38.

B. Primaries with a brand in the male.

COPÆODES.

Copæodes, Speyer, Stett. ent. Zeit. 1878, p. 183; Watson, P. Z. S. 1893, p. 97.

The type of this genus is *Ancyloxypha aurantiaca*, Hew. (= *Hesperia waco*, Edw., and *Heteropterus procris*, Edw.*), an insect not uncommon in the Southern United States and Central America. The form of the brand on the primaries of the male is quite different from that of any of the other Pamphilinæ occurring within our limits †.

The antennæ are very short, less than half the length of the costa, and have a stout, straight club, which is blunt at the tip. The palpi have a long, slender, erect third joint. The primaries are pointed at the tip, and have the outer margin excised towards the anal angle; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the lower one very much shorter than the upper; the first median branch arises from much nearer the lower angle of the cell than to the base of the median nervure, and the second is immediately beyond it; the third median segment is longer than the second in the male and shorter than it in the female. The secondaries are rounded at the anal angle; the discocellulars faint. The abdomen in the male is slender and extends beyond the anal angle of the secondaries. The hind tibiæ have two pairs of spurs. The primaries of the male have a very narrow longitudinal brand beneath the median nervure, extending along the second median branch for a considerable distance.

1. *Copæodes aurantiaca*. (Tab. XCII. figg. 39–42, ♂.)

Ancyloxypha aurantiaca, Hew. Descr. new sp. Hesperid. p. 45 (March 1868) ¹.

Copæodes aurantiaca, Wats. P. Z. S. 1893, p. 98 ².

Hesperia waco, W. H. Edwards, Trans. Am. Ent. Soc. ii. p. 122 (Aug. 1868) ³.

Thymelicus waco, Scudd. Rep. Peabody Ac. Sci. iv. p. 75 ⁴; Plötz, Stett. ent. Zeit. 1884, p. 284 ⁵.

Hesperia minima, W. H. Edwards, Trans. Am. Ent. Soc. iii. p. 196 ⁶.

Heteropterus procris, W. H. Edwards, loc. cit. p. 215 ⁷.

Copæodes candida, Wright, Proc. Calif. Acad. Sci. (2) iii. p. 34 ⁸.

Copæodes nanus, Wats. P. Z. S. 1893, p. 98 (nec Herr.-Schäff.) ⁹.

Alis nitide flavo-fulvis, stigmatibus nigrescentibus, anticis linea angustissima fusca marginatis; posticis margine costali late et ad basin fuscis: subtus anticis pallide fulvis, ad basin fuscis; posticis flavidis, linea a basi ad marginem externum interdum indistincta albida.

♀ mari similis, sed alis obscurioribus et venis fuscis.

Hab. NORTH AMERICA, Texas ^{3 4 5 6 7}, New Mexico, Arizona, California ⁸.—MEXICO ⁴, Northern Sonora (*Morrison*), Durango city (*Becker*), Puebla (*Elwes*), Lake Chapala

* Not of Felder, as stated by Watson.

† *Thymelicus nanus*, H.-S., from Cuba, of which we possess a long series, does not belong here, as stated by Watson: it has a short crook to the antennæ, and the brand of the male is wholly different in form from that of *Copæodes*. The North-American *Copæodes wrightii*, Edw., also belongs to a different genus.

(*Richardson*), Acaguizotla, Venta de Zopilote, Dos Arroyos, Rincon, Tierra Colorada, and Chilpancingo in Guerrero (*H. H. Smith*), Vera Cruz (*F. D. G.*), Coatepec, Jalapa (*coll. Schaus*); GUATEMALA, Yzabal (*F. D. G. & O. S.*), Guatemala city, San Gerónimo (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Calobre (*Arcé*).

A common insect in Central America. No locality was mentioned for it by Hewitson¹. The females have the nervures of both wings more or less fuscous on the upperside. For the genitalia of the male, see Tab. XCII. fig. 42.

III. Antennæ very short, with a stout, slightly pointed club; terminal joint of the palpi short; primaries of the male branded; hind tibiæ with two pairs of spurs.

CHÆREPHON, gen. nov.

The two species referred to this genus, *Pamphila rhesus*, Edw., and *P. citrus*, Mab., the latter being taken as the type, agree very nearly with *Hylephila* in the structure of the antennæ, except that they are blunter at the tip; they differ, however, from *Hylephila* in having the discocellulars of the primaries less oblique, the first median branch arising further from the base, the brand narrower and more transverse and unaccompanied by a field of modified scales, and the genitalia of the males otherwise formed.

The antennæ are short, not nearly half the length of the costa, and have a short, stout club, which is bluntly pointed at the tip. The palpi are densely scaled, the third joint short and suberect. The primaries are pointed in the male, blunter in the female; the cell is considerably less than two-thirds the length of the costa; the discocellulars are moderately oblique, the lower one short and of the same length as the third median segment; the first branch arises near the middle of the median nervure, the second immediately before the lower angle of the cell; the lower radial is depressed at its base. The secondaries are rounded at the anal angle; the discocellulars are barely traceable. The body is moderately stout. The middle and hind tibiæ are conspicuously spined, the latter with two pairs of spurs. The primaries of the male have a narrow oblique brand, which starts from the base of the second median branch, crosses the first median branch, and nearly reaches the submedian nervure.

C. rhesus, at first sight, appears to be without a brand, but on removing the scales we find that the rudiments of one can clearly be made out. The structure of the genitalia of the males is very similar in the two species, and quite different from that of *Hylephila*. *C. citrus* and *C. rhesus* both inhabit Mexico, the first-mentioned extending southwards to Honduras and the latter occurring also in the Southern United States.

a. Brand on the primaries conspicuous.**1. Chærephon citrus.** (Tab. XCIII. figg. 1-4, ♂.)

Pamphila citrus, Mab. Le Nat. 1889, p. 144, fig. 1¹.

Alis fuscis, stigmatibus nigrescente, squamis fulvis sparsim vestitis; anticis punctis duobus aut tribus in linea transversa subapicalibus, macula minuta ad cellulæ finem (interdum obsoleta), aliis quinque in serie obliqua et sinuosa infra et ultra cellulam (quarta et quinta interdum obsoletis), fulvis; posticis maculis quatuor in serie curvata apicem versus plus minusve distinctis, fulvis: subtus anticis fuscis, punctis paginæ superioris majoribus, costa et ad apicem late, squamis flavis dense tectis; posticis flavis, fusco-marmoratis, maculis in serie subangulata marginem externum versus, aliis tribus basin propioribus, pallide flavis; anticis et posticis punctis minutissimis marginalibus ad venarum fines ornatis; corpore subtus canescente; ciliis griseis.

♀ mari similis, sed maculis majoribus et magis distinctis.

Hab. MEXICO (*mus. Staudinger*), Venta de Zopilote, Dos Arroyos and Chilpancingo in Guerrero (*H. H. Smith*), Mazatlan (*G. Mathew*); GUATEMALA, San Gerónimo, Guatemala city (*F. D. G. & O. S.*); HONDURAS (*Wittkugel, in mus. Staudinger*¹).

Dr. Staudinger has lent us the type of this species, a male, from Honduras, as well as an abraded female from Mexico, the latter being labelled *Pamphila reticulata*, H.-S. We have six others agreeing with these from various localities in Mexico and Guatemala, including both sexes. For the genitalia of the male, see Tab. XCIII. fig. 4.

b. Brand on the primaries very faint.**2. Chærephon rhesus.** (Tab. XCIII. figg. 5, 6, ♀; 7, ♂.)

Pamphila rhesus, W. H. Edwards, Field and Forest, iii. p. 116¹; Skinner, Ent. News, 1900, p. 414, t. 2. ff. 19, 20 (♂)².

Alis fuscis, punctis subapicalibus tribus in linea transversa, maculis quatuor in serie obliqua et sinuosa infra eos, alia minuta ad cellulæ finem, sordide albis: subtus anticis fuscis, costa flavidis, maculis ut supra, sed majoribus et quinque (nec quatuor) in serie obliqua; posticis flavidis, linea macularum confluentium litteram > formante et macula ad cellulæ finem albis, margine interno fusco, macula in cellula aliisque discalibus nigro-fuscis; anticis et posticis punctis minutissimis marginalibus ad venarum fines ornatis; corpore subtus canescente; ciliis griseis.

♀ mari similis.

Hab. NORTH AMERICA, Colorado^{1 2}, Arizona.—MEXICO (*mus. Staudinger*), Milpas in Durango 5900 feet (*Forrer*), Salazar 10,000 feet (*coll. Schaus*).

Of this species we have seen a worn pair from Durango and a female in very fresh condition from Salazar. Our description of the insect is chiefly taken from the latter, which agrees perfectly with Dr. Skinner's figures². The underside of the secondaries is very similarly marked to that of various species of *Erynnis*, from which *C. rhesus* can be at once distinguished by the blunter antennal club. For the genitalia of the male, see Tab. XCIII. fig. 7.

HYLEPHILA.

Hylephila, Billberg, Enum. Ins. p. 81 (1820); Watson, P. Z. S. 1893, p. 101.

Euthymus, Scudder, Rep. Peabody Ac. Sci. iv. p. 77 (1872).

Papilio phylæus, Drury, is the type of this genus, and Watson associates two other species with it; all are American.

The antennæ are exceedingly short, about one-third the length of the costa, with a short, robust club, terminating in an acute point. The palpi have the third joint short, subconical, erect, and rather slender. The primaries are somewhat pointed; the cell is considerably less than two-thirds the length of the costa; the discocellulars are oblique, the lower one being very short; the lower radial is much depressed at its proximal end; the first branch arises before the middle of the median nervure, the second very near the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are very faint. The body is very stout. The middle and hind tibiæ are conspicuously spined; the latter have two pairs of spurs. The primaries of the male have a broad, oblique, slightly interrupted band of small, closely compacted, blackish scales extending from the base of the second median branch to the submedian nervure near the base; outside this there is a broad diffused streak of raised scales. The sexes have the wings dissimilarly coloured.

The genus ranges from the United States to Chili and the Argentine Republic.

1. ***Hylephila phylæus***. (Tab. XCIII. fig. 8, ♂.)

Papilio phylæus, Drury, Ill. Ex. Ent. i. p. 25, t. 13. ff. 4, 5¹.

Hesperia phylæus, Boisd. et Lec. Lép. Amér. Sept. t. 78².

Hylephila phylæus, Scudd. Butt. E. U. S. & Canada, ii. p. 1630, t. 17. ff. 10, 13 (♂ ♀), t. 43. f. 4 (♂ stigma)³; Watson, P. Z. S. 1893, p. 101⁴.

Euthymus phylæus, Scudd. Rep. Peabody Ac. Sci. iv. p. 77⁵.

Phemiades augias, Hübn. Zutr. ex. Schmett. ii. p. 10. ff. 227, 228⁶.

♀. *Pamphila hala*, Butl. Trans. Ent. Soc. 1870, p. 504⁷.

Alis nitide aurantiis, stigmatibus nigrescentibus, marginibus exterioribus fusco profunde dentatis; anticis striga infra stigma, linea longitudinali ultra cellulam et posticarum costa coloris ejusdem: subtus pallide fulvis, anticis angulum analem versus flavescentibus, striga lata irregulari submediana a basi extendente, lineola angusta discocellulari, et punctis serie submarginali fuscis; posticis fusco-punctatis et fascia margini interno subparalleli coloris ejusdem.

♀. Alis fuscis, anticis punctis tribus in linea transversa subapicalibus, una ad cellulæ finem et serie macularum obliqua a margine interno prope apicem extendente, flavis; posticis maculis linea arcuata margini externo subparalleli (interdum una basin propiore) quoque flavis: subtus mari similis, sed alis obscurioribus.

Hab. NORTH AMERICA, Eastern and Southern United States³.—MEXICO, Presidio de Mazatlan (*Forrer*), Durango city (*Becker*), Sierra Madre de Tepic (*Richardson*), Jalisco (*Schumann*), Rio Papagaio, Rincon, Dos Arroyos, Venta de Zopilote, all in Guerrero (*H. H. Smith*), Atoyac (*Schumann*, *H. H. Smith*), Cordova (*Rümeli*), Jalapa (*M. Trujillo*), Orizaba (*H. H. Smith*, *F. D. G.*), Valladolid in Yucatan (*Gaumer*); GUATEMALA,

Polochic Valley (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*F. D. G. & O. S., Champion*), Guatemala city (*Champion*); NICARAGUA, Chontales (*Belt*), Matagalpa (*Richardson*); COSTA RICA (*Van Patten*), Irazu (*Rogers*); PANAMA, Bugaba, David, Volcan de Chiriqui (*Champion*), Colon.—SOUTH AMERICA to the Argentine Republic; BAHAMAS; ANTILLES, Cuba, Jamaica, Puerto Rico, Haiti, Dominica, Grenada, St. Vincent, Antigua¹, St. Christopher¹, Nevis¹, Barbados, &c.

An extremely common species throughout our region, extending northwards into the United States and southwards to the Argentine Republic, occurring also in most of the West Indian Islands. We notice but little variation in the males in the very large series before us, but in the females, which are very differently coloured, the underside of the wings is much darker in some specimens than in others.

Dr. Butler's type of *Pamphila hala*, from Venezuela⁷, is now in our collection. For the genitalia of the male, see Tab. XCIII. fig. 8.

ERYNNIS.

Erynnis, Schrank, Fauna Boica, ii. 1, p. 157 (1801); Watson, P. Z. S. 1893, p. 99.

Ocytes, Scudder, Rep. Peabody Ac. Sci. iv. p. 76 (1872).

Anthomaster, Scudder, loc. cit. p. 78.

Watson refers various Palæarctic and Nearctic species to this genus, and gives *Papilio comma*, Linn., as the type. It is nearly allied to *Hylephila*, and has the antennæ very similarly formed, except that they are distinctly longer (though not half the length of the costa), and the club (in *E. comma*) is more acutely produced at the tip; the cell of the primaries is scarcely less than two-thirds the length of the costa, and in the male it is narrower, owing to the great development of the brand. The first median branch of the primaries arises from far before the middle of the cell. In the male the second median segment is very long, and the first and second median branches are much curved at the base. The spines on the middle and hind tibiæ are very long. The brand is broad, oblique, and slightly curved: it extends along the whole length of the second median segment, then crosses the first median branch, and runs downwards to the submedian nervure.

1. *Erynnis comma*.

Papilio comma, Linn. Syst. Nat. ed. 10, p. 484¹.

Erynnis comma, Wats. P. Z. S. 1893, p. 99².

Alis nitide fulvis, stigmatibus nigro; anticis punctis tribus subapicalibus in linea transversa, tribus infra eam, flavidis, apice et margine externo late fuscis; posticis costa, margine interno et externo fuscescentibus: subtus anticis fulvis, angulum analem versus pallidioribus, striga basali ad venæ medianæ finem extendente nigrescente, maculis paginæ superioris magis obviis, apicibus viridi-fuscis; posticis quoque viridi-fuscis, ad angulum analem late fulvis, maculis quinque in linea transversa, una angulum analem versus et aliis tribus basin propioribus, albidis.

Hab. NORTH AMERICA.—MEXICO, Northern Sonora (*Morrison*).—EUROPE¹.

BIOL. CENTR.-AMER., Rhopal., Vol. II., June 1900.

3 q

The above description is taken from a single male example sent us by Morrison under the name of *Pamphila colorado*, Scudder, which is now generally treated, like several other North-American forms, as nothing more than a variety of *E. comma* (Linn.). We have nine specimens from North America from Mr. Strecker named *P. colorado*, with none of which does it quite agree. Compared with Mr. Scudder's figures of the North-American forms of this species (Mem. Bost. Soc. 1874, t. 10), it seems to come nearest to *E. juba* and *E. nevada*. It is unnecessary to quote the lengthy synonymy here.

2. *Erynnis morrisoni*. (Tab. XCIII. figg. 9, 10, ♂.)

Pamphila morrisoni, W. H. Edwards, Field & Forest, iii. p. 116 (1878) ¹.

Alis fuscis, anticis stigmatibus angusto nigro; anticis et posticis fascia angulata submarginali, anticis quoque costa late, fulvis: subtus anticis fulvis, ad angulum analem pallidioribus, basin et apice griseo-fuscis, fascia angulata transversa subapicali albida; posticis griseo-fuscis, fascia valde angulata apicem versus, altera mediana a basi extendente, albis.

♀ mari similis, sed major et forsan coloribus pallidioribus.

Hab. NORTH AMERICA, Colorado ¹, Arizona.—MEXICO, Northern Sonora (*Morrison*).

Morrison has sent us a single female under this name which agrees very well with a male from Colorado in our collection; from this latter insect our description of that sex is taken. *E. morrisoni* is closely allied to *E. comma*, but may at once be distinguished from it by the angulated fulvous submarginal band on both wings above and by the similarly shaped white band on the secondaries beneath.

Our figures are taken from the Colorado male.

IV. Antennæ short, with a stout club, terminating in a short crook; terminal joint of the palpi short; hind tibiæ with two pairs of spurs; primaries of the male with a greatly developed brand.

ATALOPEDES.

Atalopedes, Scudder, Rep. Peabody Ac. Sci. iv. p. 78 (1872); Watson, P. Z. S. 1893, p. 100.

Pansydia, Scudder, loc. cit. p. 81.

The type of this genus is *Hesperia huron*, Edw. (= *H. campestris*, Boisd.), and it also includes *H. cunaxa*, Hew. (= *H. mesogramma*, Poey). It is separable from *Thymelicus* by the great development of the brand on the primaries in the males: in this sex the neuration is modified to make room for it, the cell being very narrow from the base to beyond the middle, the second median segment arched forward and much longer than in the female, and the first and second median branches strongly curved towards the base. The brand of the male consists of a large, broad, oblique, closely compacted mass of small dull greyish scales, filling the angle between the second median segment and the first median branch, and extending some distance below the latter, this being

bordered above and below by a longitudinal streak of small velvety-black scales, and inwards by long overlapping brownish scales; outside the band there is a large oval field of modified scales, which are opalescent in certain lights.

The wings on the upperside are differently coloured in the two sexes. Watson, in his Table, gives the hind tarsi as shorter than in *Thymelicus*, but this we fail to see. The two species are American: one of them is very widely distributed and known under various names; the other is confined to Cuba and the Bahamas.

1. *Atalopedes campestris*. (Tab. XCIII. fig. 11, ♂.)

Hesperia campestris, Boisd. Ann. Soc. Ent. Fr. 1852, p. 316¹.

Hesperia huron, W. H. Edwards, Proc. Ent. Soc. Phil. ii. p. 16, t. 1. ff. 1, 2 (♂ ♀)².

Atalopedes huron, Scudd. Butt. E. U. S. & Canada, ii. p. 1661, t. 17. ff. 8 (♀), 16 (♂)³; Wats. P. Z. S. 1893, p. 100⁴.

♀. *Pamphila kedema*, Butl. Trans. Ent. Soc. 1870, p. 504⁵.

Alis anticis nitide fulvis, stigmatē nigrescente, ad apicem et marginem externum fuscis, punctis tribus subapicalibus in linea transversa duobus infra eos, fulvis; posticis fuscis, squamis et pilis fulvis (præsertim in area discali) tectis: subtus ochraceis, anticis angulum analem versus pallidioribus, striga irregulari a basi ultra ramum medianum primum extendente nigro-fusca, punctis subapicalibus ut in pagina superiore; posticis indistincte fusco maculatis.

♀. Alis fuscis, maculis duabus infra et ultra cellulam, duabus parvis marginem externum propioribus, tribus subapicalibus in linea transversa, subhyalinis, in cellula et ad marginem internum fulvo tinctis; posticis fascia transversa maculari ultra cellulam fulva: subtus pallidioribus, anticis ad angulum analem griseis, costa et cellula fulvis, striga submediana a basi nigro-fusca, maculis subhyalinis ut in pagina superiore; posticis griseo-fuscis, fascia indistincta angulata apicem versus et macula parva discali albidis.

Hab. NORTH AMERICA, Middle and Southern States^{2 3}, California¹.—MEXICO, Saltillo, San Luis (*Dr. Palmer*³), Putla (*fide Scudder*³), Orizaba (*H. J. Elwes*), Fortin, Atoyac, Chilpancingo (*H. H. Smith*); GUATEMALA, Dueñas, Zapote (*Champion*); COSTA RICA (*Van Patten*), Caché, Irazu, San Francisco (*Rogers*).—COLOMBIA.

Our collection contains a long series of both sexes of this species from the Southern United States and from within our limits. There is a certain amount of variation in the coloration of both the upper and under sides of the wings, and some of the North-American males are almost without spots beneath.

Dr. Butler's type of *Pamphila kedema*, from an unknown locality⁵, is before us, and it does not differ in the slightest degree from the female of *A. campestris*. For the genitalia of the male, see Tab. XCIII. fig. 11.

THYMELICUS.

Thymelicus, Hübner, Verz. bek. Schmett. p. 113 (1816) (part.); Watson, P. Z. S. 1893, p. 100.

Hedone, Scudder, Rep. Peabody Ac. Sci. iv. p. 79 (1872).

Pyrrhosidia, Scudder, Mem. Bost. Soc. Nat. Hist. ii. p. 346 (1874).

Watson takes as the type of this genus *T. vibex*, Hübn., and he refers various other

American forms to it. *Talides athenion*, Hübn., also belongs here. *Thymelicus*, again, is closely allied to *Hylephila*, but differs from it in having the antennæ a little more elongate, though not half the length of the costa, with a short terminal crook. The cell of the primaries is slightly shorter. The brand of the male consists of a broad oblique streak of small, dull greyish, closely compacted scales, extending from the base of the second median segment to the submedian nervure before the middle, this being bordered above by a longitudinal streak, and within by a subtriangular patch, of small velvety-black scales; outside the brand there is a small field of modified scales. The wings on the upperside are differently coloured in the two sexes. The brand of the male is very like that of *Atalopedes*, except that the long overlapping scales are absent. *Thymelicus* is widely distributed in the New World, ranging from the United States of North America to Peru. *T. vibex* and *T. athenion* are common Central-American forms. *Hylephila dictynna*, G. & S., from the Antilles, agrees with the present genus in the structure of the antennæ as well as in the form of the brand, but it has the primaries much less pointed at the tip.

1. **Thymelicus vibex.** (Tab. XCIII. figg. 12–14, ♂ ; 15, 16, ♀.)

Thymelicus vibex, Geyer, in Hübner's Zutr. ex. Schmett. iv. p. 22, ff. 685, 686 (♂) ¹; Wats. P. Z. S. 1893, p. 100 ².

Hedone præceps, Scudd. Rep. Peabody Ac. Sci. iv. p. 79 (♂) (1872) ³.

Pamphila lumida, Möschl. Verh. zool.-bot. Ges. Wien, 1882, p. 217 ⁴.

Pamphila golenia, Möschl. loc. cit. p. 218 ⁵.

Pamphila stigma, Skinner, Canad. Ent. xxviii. p. 188 (1896) ⁶; Ent. News, xi. p. 414, t. 2. ff. 15, 16 (♂) ⁷.

Alis nitente fulvis, ad basin obscurioribus, stigmatе nigrescente; anticis striga infra stigma, macula elongata ultra cellulam, apice, et margine externo inter ramos medianos dentato, fuscis; posticis margine interno late et externo anguste fuscescentibus: subtus flavis, anticis ad basin nisi in costa nigro-fuscis, apice et margine externo posticisque irregulariter fusco-maculatis.

♀. Alis fuscis, anticis punctis tribus minutis in linea transversa subapicalibus, maculis quatuor aut quinque in serie obliqua infra et ultra cellulam, secunda maxima, sordide albis: subtus anticis ut supra, sed pallidioribus, costa et apice grisescentibus; posticis griseis aut albidis, maculis confluentibus serie submarginali aliisque basin versus fuscis.

Hab. NORTH AMERICA, New Mexico and S.W. Texas ^{6 7}.—MEXICO, Presidio de Mazatlan (*Forrer*), Dos Arroyos, Tierra Colorada, Rincon, Hacienda de la Imagen, Acaguizotla, all in Guerrero, Atoyac, Fortin, Teapa (*H. H. Smith*), Orizaba (*H. J. Elwes*), Jalapa (*coll. Schaus*), Valladolid in Yucatan (*Gaumer*), Tehuantepec (*fide Scudder* ³); GUATEMALA, Central valleys (*F. D. G. & O. S.*), Santa Maria (*Richardson*), Guatemala city (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA (*Van Patten*), Caché, San Francisco (*Rogers*).—SOUTH AMERICA, Colombia ^{4 5} to Paraguay, Trinidad.

It is extremely doubtful whether the North-American *T. brettus*, Boisduval and

Leconte*, of which we possess a long series from various localities in the United States, can be separated from the present species; they have the genitalia of the males similarly formed. The spots on the underside of the secondaries of the male of *T. vibex* vary in size: in some specimens they are as large and dark as in *T. brettus*, and in others quite small and reddish, as in *T. stigma* (Skinner). The females are very like those of *T. athenion*, from which they may be distinguished by the absence of the dark fascia on the secondaries beneath. *T. vibex* is also very like *Hylephila phylæus*, from which it may be separated by the longer crook to the antennal club and the non-dentate fuscous margin to the secondaries in the male; the females of the two species are very differently marked. A pair of *T. vibex* from Rincon, Guerrero, are figured. For the genitalia of the male, see Tab. XCIII. fig. 14.

2. *Thymelicus athenion*. (Tab. XCIII. fig. 17, ♂.)

Talides athenion, Hübn. Samml. ex. Schmett. t. 148. ff. 1, 2 (♂), 3, 4 (♀)¹.

Alis fuscis, stigmatè magno nigro; anticis maculis duabus utra stigma, duabus marginem exteriorem propioribus, punctis tribus minutis in linea transversa subapicalibus, omnibus evanescentibus, sordide albis: subtus griseis aut flavo-griseis fusco irregulariter marmoratis; posticis distincte transfasciatis, maculis paginæ superioris magis obviis; ciliis flavo-griseis.

♀. Alis fuscis, anticis punctis subapicalibus tribus in linea transversa, maculis quatuor aut quinque in serie sinuosa obliqua a medio marginis interioris apicem versus extendente sordide albis: subtus mari similis, sed alis pallidioribus.

Hab. MEXICO, Sierra Madre de Tepic (*Richardson*), Jalisco (*Schumann*), Acaguizotla, Amula, Dos Arroyos, Venta de Zopilote, Rincon, R. Papagaio, and La Venta in Guerrero, Cuernavaca, Fortin, Vera Cruz, Teapa (*H. H. Smith*), Atoyac (*Schumann*, *H. H. Smith*), Misantla (*F. D. G.*), Jalapa (*M. Trujillo*, *F. D. G.*, coll. *Schaus*), Coatepec (coll. *Schaus*), Orizaba (*H. J. Elwes*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Guatemala city, Zapote, Dueñas (*Champion*), San Gerónimo (*F. D. G. & O. S.*, *Champion*); HONDURAS (*Wittkugel*, in mus. *Staudinger*), San Pedro (*Whitely*); NICARAGUA, Chontales (*Belt*, *Janson*); COSTA RICA (*Van Patten*), San Francisco, Caché, Irazu (*Rogers*); PANAMA, Paraiso (*M^cLeannan*).—SOUTH AMERICA to Brazil.

We have a very large series of this insect, ranging from Northern Mexico to Brazil. Our specimens agree well with Hübner's figures, except that the males have the light spots on the primaries less distinct. *T. athenion* is not unlike *Catia druryi*, but the males have more pointed primaries and differently-formed genitalia: for these latter, see Tab. XCIII. fig. 17.

CATIA, gen. nov.

We take *Hesperia druryi*, Latr. (= *Thymelicus ætna*, Scudd.), as the type of this genus, and include in it *H. misera*, Luc. (= *Pamphila mago*, H.-S.), *Pamphila ravola*, G. & S., and an unnamed species from Jamaica in our collection. Scudder,

* The insect figured as a male of this species is a female, as has been noticed by Scudder and others.

in dealing with *T. ætna*, calls attention to the complicated structure of the brand in the primaries in the male, and this is so remarkable that we think it of sufficient importance to put the species possessing this character into a separate genus.

The antennæ are barely half the length of the costa, and have a short stout club, terminating in a short slender crook. The palpi have their third joint short, stout, conical, and erect. The neuration of the primaries is similar to that of *Thymelicus*. The brand in the males is very complicated and consists of the following portions: 1st, an elongate or oval velvety-black patch, extending along the second and sometimes the third median segments; 2nd, a smaller, more rounded, similarly-coloured patch nearer the base, immediately above the submedian nervure (not always distinct); 3rd, between these, and crossing the first median branch, a mass of large, raised, longitudinally striated, greyish, iridescent scales; 4th, outside this last a large field of variable extent of modified scales. The middle and hind tibiæ are spined, and the latter are furnished with two pairs of spurs.

The four species we refer to this genus are all American, three of them being apparently confined to either the Antilles or the Bahamas. *C. druryi* is a common Tropical-American form extending northwards into the Eastern United States. The field of modified scales on the upperside of the primaries in the males of *C. ravola* is enormously extended, reaching to the outer margin.

1. **Catia druryi.** (Tab. XCIII. fig. 18, ♂.)

Hesperia Drury, Latr. Enc. Méth. ix. p. 767 (1823)¹.

Thymelicus pustula, Geyer, in Hübner's Zutr. ex. Schmett. iv. p. 11, ff. 625, 626 (1832)².

Hesperia otho, Boisd. et Lec. Lép. Amér. sept. t. 77³ (nec Abbot & Smith).

Hesperia egeremet, Scudd. Proc. Essex Inst. iii. p. 174 (1863)⁴.

Thymelicus ætna, Scudd. Butt. E. U. S. and Canada, ii. p. 1696, t. 10. ff. 15 (♀), 19 (♂), t. 42. f. 9 (♂ stigma)⁵.

Pamphila ursa, Worth. Canad. Ent. xii. p. 49⁶.

Alis fuscis, stigmatæ nigro; anticis costa, interdum cellula, macula ultra cellulæ finem, punctis tribus transversis subapicalibus, interdum evanescentibus, fulvis; posticis maculis discalibus (nonnunquam obsoletis) coloris ejusdem: subtus fulvis, anticis dimidio interiore fuscis, maculis duabus aut tribus ultra cellulam, posticis punctis in linea irregulari margini exteriori subparallelis pallide flavis.

♀. Alis fuscis, anticis maculis duabus infra et ultra cellulam, punctis tribus transversis subapicalibus, flavis aut sordide albis: subtus fulvis maculis ut in pagina superiore, anticis dimidio interiore fulvis.

Hab. NORTH AMERICA³, Eastern United States^{5 6}, Georgia.—MEXICO, Jalisco (*Schumann*), Soledad, Dos Arroyos, Acaguizotla, Rincon, and Venta de Zopilote in Guerrero, Atoyac (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); HONDURAS (*Mus. Brit.*), Ruatan I. (*Gaumer*); PANAMA (*Ribbe*).—SOUTH AMERICA to Brazil.

In the British Museum the name *Hesperia druryi* is applied to an Antillean insect which we have elsewhere described as *H. ravola*, but we cannot accept this determination as correct. The diagnosis of *Pamphila phocion*, Fabricius, is too vague for

identification ; moreover, as interpreted by Dr. Butler, his insect was a female, and we therefore use the next oldest name, that of Latreille, with whose description Hübner's figure seems to agree very well. We have also seen a male of it from Teffé, in Dr. Staudinger's collection, labelled *Pamphila lacordairii*, Boisd. A very closely allied species, *H. misera*, Lucas (= *mago*, Herrich-Schäffer), occurs in Cuba and the Bahama Islands.

Individuals of *C. druryi* vary even more than those of *Thymelicus vibex*: the amount of the fulvous colour on the costa and cell is sometimes considerably extended, at others is entirely absent ; the secondaries, too, are more fulvous in some specimens than in others. The underside, in both male and female, varies in colour from fulvous to pale fuscous, and this does not appear to be associated with locality.

We possess a very large series of specimens of this insect, ranging from the United States to Brazil. For the genitalia of the male, see Tab. XCIII. fig. 18.

OCHLODES.

Ochlodes, Scudder, Rep. Peabody Ac. Sci. iv. p. 78 (1872) ; Watson, P. Z. S. 1893, p. 99.

Watson, following Scudder, gives *Hesperia nemorum* of Boisduval as the type of *Ochlodes*, and associates with it two other North-American species. *Pamphila snowi*, Edw., which occurs in Mexico, as well as in the Southern United States, agrees with these in the form of the brand, and we therefore include it in the present genus. *Ochlodes* does not differ structurally from *Thymelicus*, but it has a narrower brand, bordered on each side with differently formed scales. The middle and hind tibiæ are conspicuously spined, as is also the case in *Limochores*, which will probably have to be sunk as a synonym of the present genus.

1. *Ochlodes snowi*. (Tab. XCIII. figg. 19–21, ♂ ; 22, 23, ♀.)

Pamphila snowi, W. H. Edwards, Canad. Ent. ix. p. 29¹ ; Field & Forest, iii. p. 117².

Alis fuscis, stigmatibus nigro ; anticis maculis duabus parvis in cellula (interdum confluentibus), aliis tribus in linea obliqua infra et ultra cellulam, punctisque subapicalibus tribus in linea transversa, fulvis ; posticis fascia submarginali maculata, macula quoque in cellula, fulvis : subtus ferrugineo-fulvis, anticis ad angulum analem pallidioribus, striga mediana a basi infra cellulam nigrescente, maculis omnibus ut in pagina superiore ; posticis linea maculari transversa marginem externum versus, macula quoque ad cellulæ finem, flavidis.

♀ mari similis sed anticis maculis pallidioribus.

Hab. NORTH AMERICA, Colorado¹, New Mexico, Arizona.—MEXICO, Puebla (*H. J. Elwes*).

Four much worn males of this species were captured by Mr. Elwes at Pinal, near Puebla, at an elevation of 8000 feet. They differ from our Colorado and Arizona specimens in having a more distinct fulvous band on the upperside of the secondaries. The genitalia are similarly formed to those of North-American examples, see Tab. XCIII. fig. 21.

We figure a pair from Fort Grant, Arizona.

AUGIADES.

Augiades, Hübner, Verz. bek. Schmett. p. 112 (1816) ; Watson, P. Z. S. 1893, p. 103.

Watson gives as the type of this genus *Papilio sylvanus*, Esp., a well-known European insect, and he includes in it two other Palæarctic species ; two from the highlands of Central America are now added. In his Table of the genera he includes *Augiades* in a section in which the middle and hind tibiæ are not spined ; we notice, however, that in *A. sylvanus* the middle tibiæ are distinctly spined, as is the case also in *A. heras*, but not in *A. hecale*. The brand on the primaries of the males of the Central-American species is more developed than in *A. sylvanus*, but its general form is similar.

The antennæ are short, not half the length of the costa, with a stout club, terminating abruptly in a short crook. The palpi have the third joint very short and stout. The primaries have the cell less than two-thirds the length of the costa ; the discocellulars are oblique, the upper one long ; the lower radial is strongly depressed at the base, arising at or near the lower angle of the cell ; the first branch arises a little before the middle of the median nervure, the second near the lower angle of the cell. The secondaries have the discocellulars faint. The middle tibiæ are distinctly spined (except in *A. hecale*) ; the hind tibiæ have two pairs of spurs. The primaries of the male have a long, broad, oblique brand of small, dull, greyish, closely compacted scales, extending from the base of the second median branch to the submedian nervure before the middle.

1. ***Augiades heras***, sp. n. (Tab. XCIII. figg. 24–26, ♂.)

Alis brunneo-fuscis, stigmatè nigrescente ; anticis maculis duabus parvis elongatis ad cellulæ finem, tertia subquadrata inter ramos discoidales, punctis tribus in linea transversa subapicalibus, fulvis, in costa dense, et dimidio basali sparsim, squamis fulvis tectis ; posticis fascia maculari curvata prope apicem et dimidio interno pilis fulvis ornatis : subtus ferrugineis, anticis costæ dimidio basali et area submediana a basi ad ramum medianum secundum nigrescentibus, maculis duabus infra cellulam inter ramos medianos et punctis subapicalibus sicut in pagina superiore, omnibus fulvis ; posticis fasciis curvatis transversis indistinctis, ochraceis ; ciliis fulvis, apicem anticarum versus obscurioribus.

♀ ignota.

Hab. MEXICO, Omilteme in Guerrero (*H. H. Smith*).

Of this very distinct species we have received three males from Western Mexico, where they were taken at an altitude of 8000 feet. The general colour of the upper surface is much richer than in most of the allied forms. For the genitalia of the male, see Tab. XCIII. fig. 26.

2. ***Augiades hecale***, sp. n. (Tab. XCIII. figg. 27–29, ♂.)

Alis fulvis, stigmatè fusco-nigrescente ; anticis venis, margine externo macula ultra cellulam elongata, et posticis marginibus omnibus fuscis : subtus ochraceis, punctis tribus in linea transversa subapicalibus

pallidioribus area submediana a basi ad ramum medianum secundum extendente, macula magna subquadrata ramo mediano primo divisa flavida; posticis linea maculari transversa curvata subapicali et macula basin propiore pallide ochraceis.

♀ ignota.

Hab. MEXICO, Omilteme and Xucumanatlan in Guerrero (*H. H. Smith*), Orizaba (*H. J. Elwes*); GUATEMALA, Chilasco (*Champion*).

Four males of this species have been sent us, from as many different localities, from elevations between 5000 and 8000 feet. The large stigma and dark nervures distinguish it from most of its American allies. For the genitalia of the male, see Tab. XCIII. fig. 29.

V. Antennæ short, with a rather slender club, terminating in a short crook; terminal joint of the palpi short; hind tibiæ with a single pair of spurs; primaries of the male without a brand.

ZARIASPES, gen. nov.

Two species are referred to this genus, of which *Urbanus mys*, Hübn., may be taken as the type; the latter is a common Tropical-American insect, and the other is confined to Western Mexico. *U. mys* bears a strong superficial resemblance, especially in the female sex, to *Padraona epictetus* (Fabr.), which has a similar geographical distribution; but differs from it in having shorter antennæ, with a much shorter crook, the palpi clothed with densely matted scales, and the hind tibiæ with a single pair of spurs.

The antennæ are less than half the length of the costa, and have a moderately stout club, terminating abruptly in a short crook. The palpi are clothed with densely matted, adpressed, hair-like scales; the third joint is short, bluntly conical, and suberect. The primaries are narrow, somewhat pointed at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the lower one very short; the lower radial is depressed at the base; the first branch arises a little before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are barely traceable. The body is moderately stout. The middle and hind tibiæ are without spines, each with a single pair of spurs. The primaries are without trace of a brand in the male.

1. *Zariaspes mys*. (Tab. XCIII. figg. 30, 31, ♂.)

Urbanus vigilans mys, Hübn. Samml. exot. Schmett. t. 158. ff. 1, 2 (♂), 3, 4 (♀) ¹.

Pamphila dukolum, Blake, Trans. Am. Ent. Soc. vii., Proc. Ent. Sect. p. ix (1879) ².

Pamphila epictetus, Staud. Exot. Schmett. p. 297, t. 99 (♂) (nec Fabr.) ³.

Alis fulvis, anticis costa ultra cellulam, margine externo et interno, striga mediana angulata (interdum interrupta) a basi ad cellulæ finem extendente, macula triangulari subapicali, nigro-fuscis; posticis

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marginibus externis et internis anguste, limbo costali late, nigro-fuscis: subtus flavis, anticis area discali fulvis, ad basin (nisi in costa) et ad angulum analem nigro-fuscis, posticis marginem interiorem versus fulvis.

♀ mari similis, sed colore nigro-fusco magis extenso, posticis margine externo latiore; ciliis fulvis.

Hab. MEXICO, Atoyac (*H. H. Smith & Schumann*), Paso de San Juan in Vera Cruz (*coll. Schaus*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panima in Vera Paz (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Gabb*²); PANAMA, Chiriqui³ (*mus. Staudinger*), Bugaba (*Arcé*), Panama city (*J. J. Walker*).—SOUTH AMERICA to Paraguay.

Mr. H. H. Smith procured us a long series of this species from Atoyac in Vera Cruz, and we also possess numerous specimens from more southern localities; upwards of fifty of these are males and only four females; the examples, too, that Dr. Staudinger has sent us for examination are all males. We are by no means sure that the female insect figured by Hübner belongs to the same species. For the genitalia of the male, see Tab. XCIII. fig. 31.

2. *Zariaspes mythecus*, sp. n. (Tab. XCIII. figg. 32–34, ♂; 35, 36, ♀.)

Alis nitide ochraceis, anticis costa apicem versus, margine externo et interno lineaque angusta discocellulari, nigro-fuscis, costa posticarum quoque coloris ejusdem: subtus ochraceo-flavis, anticis plaga ad basin nigro-fusca.

♀. Alis fulvis, anticis costa apicem versus, margine externo et interno, fascia interrupta a basi per cellulam extendente, et macula triangulari ultra eam, nigro-fuscis; posticis marginibus omnibus coloris ejusdem: subtus flavis, anticis fascia mediana a basi ad cellulæ finem, interdum interrupta, et macula ad angulum analem fuscis, area inter eas ochraceo tinctis.

Hab. MEXICO, Acapulco, Dos Arroyos, R. Papagaio, Acaguizotla, all in Guerrero (*H. H. Smith*).

Our collection contains eight males and four females of this pretty species, captured by Mr. H. H. Smith in Western Mexico, where it inhabits the low land. Though the sexes are so dissimilar in colour, we have no hesitation in placing them together, both males and females having been obtained in three out of the four localities where the insect was met with.

Z. mythecus is a close ally of *Z. mys* (Hübner.), but is much larger and the males are differently coloured; the females, however, of the two forms are very similar. For the genitalia of the male, see Tab. XCIII. fig. 34.

VI. Antennæ short, with a stout or moderately stout club, terminating in a short crook; terminal joint of the palpi short; hind tibiæ with two pairs of spurs; primaries of the male with or without a brand, the latter, when presents moderately developed or inconspicuous.

POANOPSIS, gen. nov.

We take *Pamphila puxillius*, Mab., from Mexico, as the type of this genus. In the

short, broad wings, &c. it agrees with *Poanes*, the type of which is the North-American *P. massasoit*, Scudd., but differs in having a conspicuous oblique brand on the primaries in the male.

The antennæ are short, not half the length of the costa, and have a very stout, moderately long club, terminating in a short crook. The palpi have the third joint short, stout, and bluntly conical. The primaries are short and broad, blunt at the tip; the cell is considerably less than two-thirds the length of the costa; the discocellulars are oblique, the lower one much shorter than the upper, and about as long as the third median segment; the lower radial is depressed at the base; the first branch arises before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle, the discocellulars faint. The body is robust, very hairy beneath. The middle and hind tibiæ are spined, the latter with two pairs of spurs. The cilia of both wings are very long. The primaries of the male have a conspicuous oblique brand, running from the base of the second median branch to the submedian nervure.

1. *Poanopsis puxillius*. (Tab. XCIII. figg. 37-40, ♂.)

Pamphila puxillius, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. clxx (♂)¹.

Alis fuscis, stigmatibus nigrescentibus; anticis maculis duabus (interdum obsoletis) inter ramos medianos, interiore majore, aliis duabus minutis subapicalibus in linea transversa, sordide albis: subtus pallidioribus, maculis ut supra; anticis dimidio basali (nisi in costa) obscurioribus; posticis linea maculosa curvata margini interno subparalleli (interdum obsolete) indistincte albida; ciliis elongatis, sordide albis.

♀ mari similis, sed major.

Hab. MEXICO (*mus. Staudinger*¹), Milpas and Ciudad in Durango (*Forrer*), Bolaños (*Richardson*), Omilteme in Guerrero (*H. H. Smith*).

Of this insect we have three males and one female before us, all from the high tablelands of Mexico; that from Milpas has the spots between the median branches almost obsolete. Mabilles's description was taken from a single male. We have identified the species from a specimen lent us by Dr. Staudinger. For the genitalia of the male, see Tab. XCIII. fig. 40.

PARATRYTONE, gen. nov.

The two Mexican insects referred to this genus agree in their general structure with *Atrytone*, but they differ from it in having an oblique linear brand on the primaries in the male. The genitalia in this sex are also very unlike those of any of the species of *Atrytone*, the harpes being broadly rounded at the tip. As in some of the members of the last-mentioned genus, the costa of the secondaries is clothed with very long projecting hairs at the base, these being so elongate in the males as to extend beyond the costa of the primaries when the wings are extended. *P. rhexenor* is taken as the type.

The antennæ are not half the length of the costa, and have a very stout, short club,

terminating in a short crook. The third joint of the palpi is very short and bluntly conical, almost concealed. The primaries and secondaries are shaped as in *Atrytone*, the costa of the latter clothed with very long hairs at the base. The middle and hind tibiae are spined, the latter with two pairs of spurs. The primaries of the male have an oblique linear brand running from the base of the second median branch to the submedian nervure.

1. **Paratrytone rhexenor**, sp. n. (Tab. XCIII. figg. 41-43, ♂.)

Alis fuscis, stigmatibus obscuriore; anticis macula lunulata inter ramos medianos primum et secundum, altera minuta ultra eam, una supra venam submedianam, aliis duabus minutissimis juxta cellulæ finem, et punctis tribus subapicalibus in linea transversa, flavidis; posticis maculis in serie subapicali coloris ejusdem: subtus rufo-fuscis, area submediana a basi usque ad ramum secundum medianum fuscescente, maculis ut in pagina superiore; posticis strigis maculosis longitudinalibus subparallelibus, interiore interrupta, albidis. ♀ mari similis.

Hab. MEXICO, Milpas in Durango (*Forrer*), Las Vigas (*coll. Schaus*).

Mr. Schaus's collection contains three males and one female of this species, and Mr. Forrer has sent us a male from Durango. The markings on the underside of the secondaries of this insect are very peculiar, unlike those of any other species of Pamphilinae known to us. For the genitalia of the male, see Tab. XCIII. fig. 43.

2. **Paratrytone polyclea**, sp. n. (Tab. XCIII. figg. 44, 45, ♂.)

Alis fuscis, stigmatibus nigrescente; anticis maculis tribus in linea obliqua infra et ultra cellulam, ea in medio maxima, una in cellula, punctis tribus in linea transversa subapicalibus, stramineis; posticis fascia maculosa transversa apicem versus coloris ejusdem: subtus griseo-fuscis, anticis dimidio interiore obscuriore, maculis ut supra, posticis squamis flavis irroratis et fascia transversa paginae superioris indistincte indicata.

♀ ignota.

Hab. MEXICO, Omilteme in Guerrero (*H. H. Smith*).

A single male taken by Mr. H. H. Smith at Omilteme in Guerrero, at an altitude of 8000 feet, is all we know of this species. *P. polyclea* closely resembles *Atrytone melane* on the upperside, except that it has a spot in the cell and a conspicuous brand; beneath, the coloration is very different.

PHYCANASSA.

Phycanassa, Scudder, Rep. Peabody Ac. Sci. iv. p. 77 (1872); Butt. E. U. S. ii. p. 1600 (1889); Watson, P. Z. S. 1893, p. 111.

The type and only hitherto recorded representative of this genus is the North-American *P. viator* (Edw.). We refer to it a single species from Western Mexico, of which, unfortunately, females only have been received. *Phycanassa* agrees with *Poanes* in its comparatively broad wings and somewhat porrect palpi, as well as in the form of the genitalia of the males, but differs from it in having the first median branch of the primaries arising from nearer the base of the median nervure.

The antennæ are less than half the length of the costa, and have a stout club, terminating in a rather short crook. The palpi are somewhat porrect and clothed with long hair-like scales; the third joint is short, stout, and bluntly conical. The primaries are broad; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the lower one very short; the lower radial is depressed at the base; the first branch arises from a little before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are broad; the discocellulars faint. The body is robust. The middle and hind tibiæ are spined, the latter with two pairs of spurs. The primaries are without trace of a brand in the male.

A figure of the male genitalia of the North-American *P. viator* is given on Tab. XCIV. fig. 1.

1. **Phycanassa psaumis**, sp. n. (Tab. XCIV. figg. 2, 3, ♀.)

♀. Alis fuscis, anticis fascia curvata, angulata ad cellulæ finem, ad medium venæ submedianæ extendente, macula inter ramos medianos secundum et tertium quoque angulata, duabus minoribus marginem externum propioribus, punctis tribus in linea transversa subapicalibus, fulvis; posticis area discali coloris ejusdem: subtus anticis ad basin obscurioribus, costa et apud cellulæ finem fulvis, angulum analem versus late flavis, maculis ut supra, anticis ad apicem et posticis omnino fuscis squamis griseis sparsim vestitis.

Hab. MEXICO, Bolaños in Jalisco (*Richardson*).

Our description is taken from two females. They are obviously allied to *P. viator* (Edwards), but differ from that insect in having the two spots between the median branches in the transverse band of the primaries strongly angulate; the underside, too, of the secondaries is darker and more uniform in colour*.

ATRYTONE.

Atrytone, Scudder, Rep. Peabody Ac. Sci. iv. p. 77 (1872); Watson, P. Z. S. 1893, p. 111.

Watson gives *Hesperia iowa*, Scudd. (= *H. arogos*, Boisd.), as the type of this genus, and includes several other species in it, all from North America. We refer numerous Central-American forms to *Atrytone*, which agree in the following characters:—

Antennæ not or barely half the length of the costa, with a short stout club, terminating abruptly in a short crook. Palpi with the third joint very short, bluntly conical. Primaries with the cell less than two-thirds the length of the costa; the discocellulars oblique, the lower one very short; the lower radial much depressed at the base; the first branch arising a little before the middle of the median nervure, the second close to the lower angle of the cell. Secondaries slightly lobed at the anal angle, the discocellulars faint. Body robust. Middle and hind tibiæ more or less distinctly spined, the latter with two pairs of spurs. The primaries without trace of a brand in the male.

In all the species referred by us to *Atrytone*, except *A. delaware*, *A. mella*, *A. mellona*,

* We have received four examples of an allied form from Colombia, one of which was sent us by Dr. Staudinger under the name of *Pamphila azin*, Mabille; but this is a very much smaller insect.

and *A. myron*, the costa of the secondaries at the base is clothed with long projecting hairs, which are more conspicuous in the male than in the female. The genitalia of the males of *A. vitellius*, *A. myron*, and *A. rolla* differ considerably from those of the other species, as will be seen by a reference to our Plate. The sexes of *A. myron* and *A. zabulon* have the wings very dissimilarly coloured on the upperside. The females of all the species appear to be very much rarer than the males. The genus is represented all through Tropical America. *Pamphila perfida*, Möschl., from Colombia, belongs here. According to Mr. Scudder and Dr. Skinner, the North-American *A. hobomok* (Harris) has two forms of female—one very like the male, the other a dark form (*Hesperia pocahontas*, Scudd.) closely resembling the same sex of *A. zabulon*.

a. Primaries and secondaries of the male partly fulvous above,
the fringe fulvous or griseous.

1. **Atrytone delaware.** (Tab. XCIV. figg. 4, 5, 6, ♂.)

Pamphila delaware, W. H. Edwards, Proc. Ent. Soc. Phil. ii. p. 19, t. 5. f. 2 (♂)¹.

Pamphila logan, W. H. Edwards, loc. cit. p. 18, t. 1. f. 5 (♀)².

Atrytone logan, Scudd. Rep. Peabody Ac. Sci. iv. p. 77³.

Alis fulvis, ad basin obscurioribus, anticis margine externo anguste et venis fuscis; posticis marginibus omnibus et venis coloris ejusdem: subtus ochraceis, ad basin (nisi in costa) et margine interno nigro-fuscis

Hab. NORTH AMERICA, Pennsylvania^{1 2}, Florida.—MEXICO, Rincon and Venta de Zopilote in Guerrero (*H. H. Smith*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*).

We refer three males from Mexico and Guatemala with some hesitation to this species. They agree, however, with others of the same sex from Pennsylvania and Florida in our collection, and also with Edwards's figures.

A. delaware differs from *A. vitellius* (Fabr.), as understood by us, in having the primaries of the male more pointed at the apex and without a distinct fuscous patch beyond the end of the cell. The females, from Florida, have the base and outer margins of both wings broadly marked with fuscous, the primaries also having a fuscous streak at the end of the cell. The male of *A. delaware* is also very like the same sex of the South-American *A. perfida* (Möschler), but it is paler, and has a narrow fuscous margin to the primaries, the veins in these wings are also much less distinctly marked with fuscous. A specimen from Rincon is figured.

We have examined the genitalia of a North-American specimen only: see Tab. XCIV. fig. 6.

2. **Atrytone zabulon.** (Tab. XCIV. fig. 7, ♂.)

Hesperia zabulon, Boisd. et Lec. Lép. Am. Sept. t. 76. ff. 6, 7¹.

Atrytone zabulon, Scudd. Butt. E. U. S. & Canada, ii. p. 1617, t. 10. ff. 8, 10 (part.)²; Watson, P. Z. S. 1893, p. 111³.

Pamphila zabulon, Jones, Ent. News, viii. p. 121, t. 7 (♂ ♀)⁴; Skinner, Ent. News, xi. p. 413, t. 2. ff. 5, 6 (♂), 7, 8 (♀)⁵.

Alis nitide fulvis, ad basin obscurioribus; anticis apice et margine externo late, interno anguste, fuscis, punctis tribus subapicalibus in linea transversa, aliis duobus infra eos, fulvis; posticis marginibus omnibus fuscis: subtus anticis fulvis, ad angulum analem et apicem versus, punctisque tribus subapicalibus sicut in pagina superiore, flavescens, margine externo et ad basin late fuscis; posticis læte flavis, ad angulum analem et ad basin fuscis, maculis variis coloris ejusdem in area discali.

♀. Alis fuscis, anticis maculis quinque in serie sinuosa obliqua, secunda maxima, quarta et quinta parvis, punctis tribus in linea transversa subapicalibus, flavescens: subtus rufo-fuscis, maculis ut supra, litura angulum analem versus flava; posticis rufo-fuscis, dimidio distali griseo-lavatis, fascia maculari marginem externum versus et macula geminata apicali fulvis.

Hab. NORTH AMERICA^{1 4 5}, Southern United States².—MEXICO, Omilteme and Xucumanatlan in Guerrero (*H. H. Smith*), Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes*); GUATEMALA, Central and Polochic Valleys (*F. D. G. & O. S.*), Chilasco, San Gerónimo, Dueñas (*Champion*); COSTA RICA (*Van Patten*), Caché, San Francisco, Irazu (*Rogers*).

A common species in the Southern United States and in Central America, ranging southwards as far as Costa Rica. We have a series of some forty-six specimens, six only of which are females. It is a very near ally of *A. hobomok* (Harris), an inhabitant of Canada and the Northern States; it differs, however, from that insect in having a more spotted underside to the secondaries in the male, and the nervures of both wings are fulvous (instead of black) above in this sex.

Dr. Skinner has quite recently figured the sexes of both *A. zabulon* and *A. hobomok*, and he states⁵ that they have frequently been bred by Mr. Laurent. The females of the more northern *A. hobomok* are dimorphic, but this is not the case in *A. zabulon*, so far as at present known. For the genitalia of the male of *A. zabulon*, see Tab. XCIV. fig. 7.

3. *Atrytone rolla*. (Tab. XCIV. figg. 8, 9, 10, ♂.)

Pamphila rolla, Mab. Compt. Rend. Soc. Ent. Belg. xxvii. p. lxx¹.

Alis nitide fulvis, ad basin obscurioribus; anticis margine exteriori ad apicem et ad angulum analem latiore, venis et linea angusta discocellulari, fuscis; posticis marginibus ad apicem anguste, aliter late, fuscis: subtus ochraceis, in area discali pallidioribus, ad basin (nisi in costa), margine interno, ad angulum analem, et linea ad cellulæ finem, fuscis; posticis indistincte ferrugineo maculatis, ad cellulæ finem puncto minuto nigrescente.

♀. Alis fuscis, anticis maculis quinque in serie sinuata obliqua, secunda maxima, punctisque tribus in linea transversa subapicalibus, flavis: subtus anticis ut supra, sed litura submediana magna; posticis griseo et fulvo marmoratis.

Hab. COSTA RICA (*Van Patten*), Rio Sucio (*Rogers*); PANAMA, Chiriqui (*Arcé*).—SOUTH AMERICA¹.

Mabille compares this insect with *A. zabulon*, but it is perhaps more nearly allied to *A. perfida* (Möschl.), which it somewhat closely resembles in the structure of the male genitalia. The male of *A. rolla* may be distinguished from the same sex of *A. perfida* by the very broad dark margins to both wings, and from that of *A. zabulon* and *A. hobomok* by the different coloration of the underside of the secondaries. Seven male specimens are before us, six of which are from Costa Rica, one of these latter being shown on our Plate. For the genitalia, see Tab. XCIV. fig. 10.

The females described, of which two were received with the males from the Rio Sucio, seem to belong here, though they are scarcely separable from the same sex of *A. zabulon*.

4. **Atrytone vitellius.** (Tab. XCIV. figg. 11, 12, 13, ♂.)

Hesperia vitellius, Fabr. Ent. Syst. iii. 1, p. 327¹ (nec Smith & Abbot).

Thymelicus vitellius, Hübn. Samml. exot. Schmett. ii. t. 153².

Pamphila insularis, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. clxxiv (1891)³.

Alis fulvis, ad basin obscurioribus, linea angusta elongata in cellula, macula discocellulari et margine externo, fuscis; posticis costa late ad medium introrsum angulata, margine externo angulum analem versus interrupta et latiore, margineque interno, fuscis: subtus ochraceis, anticis ad basin (nisi in costa) et margine interno anguste, vix ad angulum analem extendente, fuscis, maculis in serie ad marginem externum fere obsoletis, fuscescentibus.

♀ mari similis, sed colore fusco magis extenso.

Hab. GUATEMALA, Dueñas, Polochic Valley (*F. D. G. & O. S.*).—AMAZONS; ANTILLES¹, St. Thomas³.

There is a good deal of confusion as to what is the true *Hesperia vitellius*, Fabricius, the type of which is said to come from the West Indies. We have four male examples, including both sexes, from St. Thomas, which seem to us to answer the brief description of this insect, and with these we associate two males from Guatemala and a female from the Amazons. Hübner's figures show very clearly the characteristic angulation of the inner edge of the dark costal border of the secondaries, as well as the wider interrupted band at the anal angle of these wings.

Two males have been dissected, one from St. Thomas and one from Guatemala, and we find that the genitalia in both are similarly formed. Dr. Staudinger has lent us a pair of *P. insularis*, Mab., from St. Thomas. A specimen from Dueñas is figured. For the genitalia of the male, see Tab. XCIV. fig. 13.

5. **Atrytone mella**, sp. n. (Tab. XCIV. figg. 14, 15, 16, ♂.)

Alis fulvis, anticis margine externo late, interno anguste, striga mediana (interdum interrupta ad cellulæ finem) et venis, fuscis; posticis area discali venis fuscis divisa, fulva: subtus ochraceis, anticis area submediana a basi ad ramum medianum secundum nigrescente, maculis duabus magnis ramo mediano primo diviso pallidioribus; posticis linea margini interno subparalleli fusca.

♀ ignota.

Hab. MEXICO, Atoyac (*H. H. Smith*); PANAMA, Chiriqui (*ex Staudinger*).—BRAZIL, Chapada; BOLIVIA.

We have seen twelve examples of this species, including one from Southern Mexico and three from Chiriqui, all males. It is a close ally of *A. perfida*, Möschler, from Colombia, but differs from it in having the fuscous margins on the upperside broader, and there is an interrupted longitudinal stripe of the same colour along the median

nervure. A Chiriqui specimen is figured. For the genitalia of the male, see Tab. XCIV. fig. 16.

6. **Atrytone mellona**, sp. n. (Tab. XCIV. figg. 17, 18, 19, ♂.)

Alis fuscis, anticis striga elongata supra venam submedianam, maculis duabus in linea obliqua infra et ultra cellulam, serie obliqua macularum marginem internum versus, infima maxima, ultima externe excisa, costa, cellula partim et punctis tribus subapicalibus in linea transversa, fulvis; posticis fascia maculari apicem versus, macula elongata ad cellulæ finem, fulvis: subtus ochraceis aut ferrugineis, anticis ad basin (nisi in costa), ad marginem internum et ad marginem externum ultra angulum analem late, et venis discoidalibus fuscis, serie obliqua macularum ut in pagina superiore sed pallide flavis, posticis linea maculari curvata subapicali pallide flava.

♀ ignota.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Soledad, Tierra Colorada, Dos Arroyos, Rio Papagaio, and Acaguizotla, all in Guerrero (*H. H. Smith*), Atoyac (*Schumann*, *H. H. Smith*), Orizaba (*H. J. Elwes*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Pacific coast, Polochic and Chisoy Valleys (*F. D. G. & O. S.*), San Gerónimo (*Champion*); PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA.

We have seen eighteen males of this species, all but one from Central America. The males differ from those of *A. mella* in having the fulvous coloration less extended on the upperside, and forming sharply defined markings. A Mexican specimen is figured. For the genitalia, see Tab. XCIV. fig. 19.

b. Primaries and secondaries of the male with fulvous, flavous, or white spots, those on the secondaries sometimes indistinct; the fringe fulvous or griseous.

7. **Atrytone myron**, sp. n. (Tab. XCIV. figg. 20, 21, 22, ♂; 23, 24, ♀.)

Alis fuscis, anticis maculis tribus in linea obliqua infra et ultra cellulam, illa in medio maxima, infima elongata venam submedianam attingente: subtus anticis fuscis, costa et apice ochraceis aut viridi-ochraceis, maculis sicut in pagina superiore sed majoribus, infima maxima, elongata et pallide flava; posticis ochraceis aut viridi-ochraceis immaculatis.

♀. Alis fuscis, maculis tribus in linea obliqua infra et ultra cellulam, ea in medio subquadrata, infima venam submedianam attingente, una minuta subapicali (interdum absente), sordide albis: subtus anticis fuscis, costa et apice viridi-ochraceis sicut in mare, sed sordide albis; posticis immaculatis et viridi-ochraceis.

Hab. MEXICO, Atoyac and Fortin in Vera Cruz (*H. H. Smith*), Coatepec (*coll. Schaus*); PANAMA, Chiriqui (*mus. Staudinger*).—COLOMBIA; VENEZUELA; BRITISH GUIANA; BOLIVIA.

Of this species we have seen six specimens from Eastern Mexico, including both sexes, a male from Chiriqui, and three males from more southern localities. In its markings the male of *A. myron* is exceedingly like the same sex of *A. helva*, but on dissecting examples of each we find that the genitalia differ widely. The primaries, too, of the present species have the spot nearest the inner margin more elongate and the median spot relatively larger; on the underside, the lowest spot of the oblique series is very much larger than the rest, and it is usually of a dirty white colour,

whereas in *A. helva* it is much smaller and more isolated. The female is very different from that of *A. helva*. It may be noted that in *A. myron* the wings in both sexes are similarly coloured beneath, though they are very dissimilar above. A pair from Atoyac are figured. The two males we have dissected are respectively from Fortin, Mexico, and Roraima, Guiana; these agree perfectly in the structure of the genitalia, see Tab. XCIV. fig. 22.

8. **Atrytone helva.** (Tab. XCIV. figg. 25, 26, 27, ♂; 28, 29, ♀.)

♀. *Pamphila helva*, Möschl. Verh. zool.-bot. Ges. Wien, 1876, p. 336, t. 4. f. 20¹.

♂. *Pamphila sethos*, Mab. Le Nat. 1889, p. 173, f. 2².

♂. Alis fuscis, anticis maculis tribus in linea obliqua infra et ultra cellulam, infima parva et venam submedianam attingente, una minuta subapicali, posticis tribus discalibus parvis venis divisis, fulvis: subtus anticis fuscis, costa et apice ochraceis, maculis ut in pagina superiore, sed majoribus et coloris ejusdem; posticis sordide ochraceis, maculis discalibus paginæ superioris fere obsoletis.

♀. Alis fuscis, anticis costa et basi squamis fulvis tectis, maculis duabus quadratis elongatis inter ramos medianos ad cellulæ finem, tertia supra venam submedianam, omnibus seriem obliquam formantibus, punctis tribus in linea transversa subapicalibus, fulvis; posticis apicem versus macula vena divisa coloris ejusdem: subtus ochraceis, ad basin (nisi in costa) et margine interno late fuscis, maculis sicut in pagina superiore, sed flavis, punctis subapicalibus fere obsoletis; posticis fascia curvata transversa indistincta quoque flava.

Hab. MEXICO, Coatepec (*coll. Schaus*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe, ex Staudinger*).—COLOMBIA, Santa Marta; GUIANA, Surinam¹; AMAZONS, Pará.

Through the kindness of Dr. Staudinger we have been enabled to examine the types of *P. helva* and *P. sethos*, and we have little hesitation in treating them as belonging to one species, the chief difference being the narrower and more elongate shape of the second spot of the oblique series on the primaries in the female, and the more distinct subapical spots in this sex. We have seen a female from Coatepec agreeing with *P. helva*, and we have males from Chontales, Chiriqui, and Santa Marta agreeing with *P. sethos*. The base of the costa of the secondaries in both sexes is clothed with very long blackish hairs. The type of *P. sethos*, a male, from Chiriqui, and a female from Coatepec, agreeing with the type of *P. helva*, are figured. The genitalia of two males have been dissected, see Tab. XCIV. fig. 27.

9. **Atrytone melane.** (Tab. XCIV. figg. 30, 31, 32, ♂; 33, 34, ♀.)

Hesperia melane, W. H. Edwards, Trans. Am. Ent. Soc. ii. p. 312 (♂ ♀)¹.

Alis fuscis, anticis maculis quatuor in serie obliqua sinuosa infra et ultra cellulam, illa apicem proxima minuta, tertia maxima, quarta triangulari, punctis tribus subapicalibus in serie transversa, ochraceis; posticis macula aut fascia venis divisa apicem versus coloris ejusdem: subtus rufescenti-ferrugineis, anticis ad basin (nisi in costa) et area submediana usque ad ramum medianum secundum fuscis, maculis ut in pagina superiore; posticis fascia maculosa irregulari submarginali flavescente, interdum obsoleta.

♀ mari similis, sed anticis maculis majoribus et pallidioribus, posticis subtus maculis flavis minus distinctis.

Hab. NORTH AMERICA, California¹.—MEXICO, Durango city (*Becker*), Pinal, Puebla

(*H. J. Elwes & F. D. G.*), Aguas Calientes, Amecameca (*F. D. G.*), Omilteme, Amula, and Xucumanatlan, all in Guerrero (*H. H. Smith*), Las Vigas (*coll. Schaus*); GUATEMALA, Volcan de Fuego (*F. D. G. & O. S.*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. nostr.*).

We have a long series of this species from our region, including both sexes. Dr. Staudinger has sent us males of it from Mexico labelled *Pamphila marmorosa* (H.-S.); but as the type of the latter is a Cuban insect, we hesitate to use this name, which has a few years' priority over that of Edwards. Central-American examples usually have the spots on the upperside of the secondaries more distinct than in those from the United States; the individuals from Guatemala, Costa Rica, and Chiriqui are also smaller than those from more northern localities. The females (which may be known from the same sex of *A. zabulon* and its allies by the fulvous spots on the upperside of the secondaries) differ from the males in having larger and paler spots on the primaries, these being almost hyaline in some specimens, and there is often a small additional spot between the two lower ones of the oblique series on these wings in this sex; they also have the underside of the secondaries more obscurely coloured, the irregular angulated yellow fascia being much less distinct. We have dissected males from California, Puebla, and Costa Rica, and find no difference in the structure of the genitalia, for which see Tab. XCIV. fig. 32. The male and female insects figured are both from Puebla.

10. **Atrytone gala**, sp. n. (Tab. XCIV. figg. 35, 36, ♂.)

♂. Alis fuscis, squamis ochraceis sparsim vestitis, maculis tribus in linea obliqua infra et ultra cellulam, duabus minutissimis ad cellulæ finem, punctis tribus subapicalibus in linea transversa, flavidis; posticis fascia maculosa curvata subapicali coloris ejusdem: subtus griseo-fuscis, anticis dimidio interiore obscuriore, maculis ut supra, in costa, ad apicem et posticis omnino squamis flavis ornatis, fascia maculosa posticarum quoque indistincte indicata.

♀ ignota.

Hab. MEXICO, Las Vigas (*coll. Schaus*).

Mr. Schaus's collection contains a single male example of this insect from Las Vigas, which we have ventured to describe.

A. gala closely resembles *A. melane* on the upper surface, but has two additional minute spots in the cell of the primaries, and the band on the secondaries is more extended and bent inwards towards the inner margin. The underside also of the secondaries is differently coloured.

11. **Atrytone monticola**, sp. n. (Tab. XCIV. figg. 37, 38, 39, ♂; 40, ♀.)

Alis fuscis, anticis maculis tribus in serie obliqua infra et ultra cellulam, secunda majore, punctis tribus subapicalibus in linea transversa, ochraceis, posticis macula parva apicem versus coloris ejusdem: subtus anticis fuscis, costa squamis flavidis tectis, ad apicem late rufo-ferrugineis, maculis ut in pagina superiore;

posticis quoque rufo-ferrugineis, marginem internum versus obscurioribus, fascia maculosa obliqua, ad cellulæ finem valde angulata, alba, et in angulis castaneis aut ochraceis; ciliis posticarum et ad angulum analem anticarum griseis, aliter fuscis.

♀ mari similis, sed anticis et posticis versus apicem squamis schistaceo-griseis tectis; anticis maculis majoribus, alia minutissima infra punctos subapicales, subtus alia obliqua inter primum et secundum.

Hab. MEXICO, Aguas Calientes, Amecameca (*F. D. G.*), Las Vigas (*coll. Schaus*).

This, too, is an inhabitant of the highlands of Mexico, ranging from 8000 to 10,000 feet. It is a common insect on the plain at the foot of Popocatepetl. *A. monticola* is a northern representative of the Guatemalan *A. niveolimbus*, but differs from it in having the fringe of both wings and the costal margin of the primaries dark. In the females there is a small additional spot in the oblique series on the primaries, and on the underside of these wings there is an oblique yellow streak just below the largest spot. For the genitalia of the male, see Tab. XCIV. fig. 39.

c. Primaries with hyaline spots; the fringe of both wings white.

12. **Atrytone niveolimbus.** (Tab. XCIV. figg. 41, 42, 43, ♂.)

Pamphila niveolimbus, Mab. Le Nat. 1889, pp. 133, 134, f. 1¹.

Alis fuscis, anticis maculis duabus, interiore majore ad cellulæ finem inter ramos medianos (interdum obsoletis), punctis tribus subapicalibus in linea transversa, margine costali (nisi ad basin) anguste, albis: subtus anticis fuscis, costa squamis flavidis tectis, ad apicem late rufo-ferrugineis, maculis ut in pagina superiore; posticis quoque rufo-ferrugineis, marginem internum versus obscurioribus, fascia maculosa obliqua, ad cellulæ finem valde angulata, alba, et in angulo ochracea aut castanea.

♀ nobis ignota.

Hab. GUATEMALA¹, Calderas on the slopes of the Volcan de Fuego (*F. D. G. & O. S.*), Totonicapam, Quiché Mountains (*Champion*).

This handsome species is readily recognizable by the white costal margin of the primaries and the white fringe to both wings; it also has an oblique angular series of white spots on the secondaries beneath. We have five males of it from Guatemala, from elevations between 7000 and 10,000 feet, and the type received from Dr. Staudinger is of the same sex. For the genitalia of the male, see Tab. XCIV. fig. 43.

d. Primaries and secondaries of both sexes uniformly fuscous above; the fringe of both wings griseous.

13. **Atrytone inimica.** (Tab. XCIV. figg. 44, 45, 46, ♂; 47, ♀.)

Pamphila inimica, Butl. & Druce, Cist. Ent. i. p. 114¹.

Alis nitente fuscis immaculatis: subtus rufo-fuscis, anticis ad apicem cinnamomeis et squamis albis limbatis, inter ramos medianos, et angulum analem versus, flavescentibus; posticis colore cinnamomeo marmoratis. ♀ mari similis.

Hab. MEXICO, Jalapa (*Edwards, coll. Schaus*), Orizaba (*H. J. Elwes*); GUATEMALA, San Gerónimo and Panima in Vera Paz, Dueñas, Zapote, Chilasco (*Champion*); COSTA RICA (*Van Patten*¹), Caché, Irazu, Rio Sucio (*Rogers*); PANAMA, Chiriqui (*ex Staudinger*).—COLOMBIA; VENEZUELA.

Of this species we possess a long series from Central and South America, the insect ranging from the Mexican State of Vera Cruz to Venezuela. *A. inimica* may be known from all the allied forms by the uniform fuscous colour of the upper surface of the wings. We figure a pair from Orizaba. For the genitalia of the male, see Tab. XCIV. fig. 46.

BUZYGES, gen. nov.

Amongst the non-branded American forms placed by us provisionally under *Atrytone* there is one, from Costa Rica, that we are compelled to separate, it having a much longer club to the antennæ, the club, moreover, being densely clothed with scales to near the tip. The secondaries, as in many species of *Atrytone*, are clothed with long projecting hairs at the base of the costa. The genitalia of the males are not unlike those of *Atrytone myron* and *A. rolla*, the harpes being truncated at the tip. The antennæ are about half the length of the costa, and have a long, stout club, terminating in a rather short crook, the club itself densely clothed with scales (above and beneath) to near the tip. The third joint of the palpi is very short and bluntly conical. The neuration of the wings is like that of *Atrytone*, and the legs are formed as in that genus. The primaries are without trace of a brand in the male.

1. **Buzyges idothea**, sp. n. (Tab. XCV. figg. 1, 2, 3, ♂; 4, 5, ♀.)

Alis læte brunneo-fuscis, anticis plaga magna subovali in area discali, punctis tribus in linea transversa subapicalibus, duobus (interdum uno) infra eos, fulvis: subtus ferrugineis, anticis ad basin (nisi in costa), margine interno anguste ad angulum analem late, fuscis, maculis sicut in pagina superiore, sed punctis subapicalibus (fere obsoletis) castaneo irroratis; ciliis anticarum ad angulum analem et posticarum omnino ochraceis; clava antennarum quoque ochracea.

♀ mari similis, sed anticis plaga discali venis tripartita.

Hab. COSTA RICA, Rio Sucio, Irazu (*Rogers*).

Mr. Rogers procured us a long series of this species from Costa Rica—all males, but one. For the genitalia of the male, see Tab. XCV. fig. 3.

ATRYTONOPSIS, gen. nov.

We take *Hesperia deva*, Edw., as the type of this genus, and also include in it *H. hianna*, Scudd., and *Pamphila pittacus* and *P. python*, Edw.; all are North-American, three of them entering Northern Mexico. It is allied to *Atrytone* and *Paratrytone*, from which it differs in having the primaries more produced at the tip in the males; the secondaries have a shorter cell, and their discocellulars are more transverse; the

brand in the male is narrow, in some species not easily seen till the larger scales are removed.

The antennæ are considerably less than half the length of the costa, and have a stout club, terminating in a short crook. The palpi have the third joint short, stout, and bluntly conical. The primaries are strongly produced at the apex; the cell is much less than two-thirds the length of the costa and produced at the apex; the upper discocellular is very oblique, and fully twice the length of the lower; the lower radial is depressed at its base; the first branch arises from a little before the middle of the median nervure, the second from close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the cell is short and broad; the discocellulars are transverse and very faint, except at their origin. The body is robust. The middle and hind tibiæ are spined, the latter with two pairs of spurs. The primaries of the male have a very narrow, indistinct, sinuous, oblique, interrupted brand, extending from the base of the second median segment to the submedian nervure, this being more apparent in *A. hianna* than in *A. deva* or *A. pittacus*.

We have dissected the genitalia of the males of three of the species and find them very similar.

a. Secondaries immaculate above.

1. *Atrytonopsis deva*. (Tab. XCV. figg. 6-9, ♂; 10, ♀.)

Hesperia deva, W. H. Edwards, Trans. Am. Ent. Soc. v. p. 292 (♀)¹.

Pamphila deva, W. H. Edwards, op. cit. ix. p. 4 (♀)²; Papilio, iv. p. 55 (♂ ♀)³ (nec *P. deva*, W. H. Edwards, Papilio, ii. p. 138).

Alis pallide nitente fuscis, stigmatе concolore, anticis maculis transversis duabus, una inter ramos medianos primum et secundum, altera ultra eam minore, punctisque tribus in serie transversa, omnibus albo-hyalinis: subtus ut supra, anticis angulum analem versus grisescentibus, posticis fascia maculari recta transversa ultra cellulam fusco-brunnea, anticis costa et apice late posticisque squamis cinereis dense vestitis; ciliis posticarum albis.

♀ mari similis, sed maculis majoribus, anticis macula submediana albida; posticis subtus maculis duabus transversis subcostalibus coloris ejusdem.

Hab. NORTH AMERICA, Arizona^{1 2 3}.—MEXICO, Northern Sonora (*Morrison*).

Numerous specimens of both sexes of this species have been sent us from Sonora by Morrison, as well as two from Arizona. For the genitalia of the male, see Tab. XCV. fig. 9.

b. Secondaries spotted above.

2. *Atrytonopsis pittacus*. (Tab. XCV. figg. 11, 12, 13, ♂.)

Pamphila pittacus, W. H. Edwards, Papilio, ii. p. 138 (♂ ♀)¹; Skinner, Ent. News, xi. p. 414, t. 2. ff. 17, 18 (♂)².

Alis pallide nitente fuscis, stigmatе concolore, anticis maculis discalibus quatuor, una in cellula geminata, secunda parva submediana, tertia subquadrata majore inter ramos medianos primum et secundum,

punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis; posticis linea maculari transversa ultra cellulam, maculaque indistincta ad cellulæ finem, albis: subtus ut supra, sed anticis costa, et apice late, posticisque squamis cinereis dense vestitis, maculis duabus indistinctis transversis subcostalibus albis.

♀ nobis ignota.

Hab. NORTH AMERICA, Arizona ^{1 2}.—MEXICO, Northern Sonora (*Morrison*).

We possess four male examples of *A. pittacus*, derived from the same source as our specimens of the preceding species, which it closely resembles. *A. pittacus* differs, however, from that insect in having more spots on the primaries, and there is also a transverse macular band on the secondaries. For the genitalia of the male, see Tab. XCV. fig. 13.

3. *Atrytonopsis python*. (Tab. XCV. figg. 14, 15, ♀.)

Pamphila python, W. H. Edwards, Papilio, ii. p. 139 (♀) ¹.

♀. *A. pittaco* similis, sed posticis maculis duabus apicem versus (nec fascia maculari) ornatis: subtus anticis litura angulum analem versus grisea, posticis fascia maculari ultra cellulam in medio interrupta.

Hab. NORTH AMERICA, Arizona ¹.—MEXICO, Northern Sonora (*Morrison*).

We have received a female example of this species from Morrison under the name of *Pamphila python*, and it agrees fairly well with Edwards's description. It is possible that the insect may prove to belong to *A. pittacus*, the female of which is unknown to us. Mr. Edwards's description of *P. python* was based upon a single specimen of that sex from Arizona.

LERODEA.

Lerodea, Scudder, Rep. Peabody Ac. Sci. iv. p. 80 (1872); Watson, P. Z. S. 1893, p. 106 (part.).

This genus, the type of which is *Hesperia eufala*, Edw., is perhaps most nearly allied to *Atrytonopsis* and *Prenes*. It differs from the latter, however, in having a shorter crook to the antennæ; the primaries are less elongate, not hollowed on the outer margin, the cell is relatively shorter, and the genitalia of the type, too, are very differently formed in the male. There is no trace of a brand on the primaries in this sex.

The antennæ are considerably less than half the length of the costa, and have a stout club, terminating in a short crook. The palpi have the third joint short, stout, erect, and bluntly conical. The primaries are narrow and somewhat pointed at the tip; the cell is considerably less than two-thirds the length of the costa; the discocellulars are oblique, the lower one shorter than the upper; the lower radial is slightly depressed at the base; the first branch arises from the middle of the median nervure, the second from close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are very faint. The body is robust. The middle and hind tibiæ are spined; the latter have two pairs of spurs.

Lerodea has a wide range in America, extending from the United States to Chili

and Peru. In addition to *L. eufala*, it includes a new species from Mexico described below, and various South-American forms. *Hesperia fusca*, Grote and Robinson, from the Southern United States, placed in *Lerodea* by Scudder and Watson, belongs to our genus *Megistias* (type *Hesperia tripunctata*, Latr.); it has a longer crook to the antennæ, and the genitalia of the male are very differently formed.

1. ***Lerodea eufala*.** (Tab. XCV. figg. 16, 17, 18, ♂.)

Hesperia eufala, W. H. Edwards, Trans. Am. Ent. Soc. ii. p. 311 (♂ ♀)¹.

Lerodea eufala, Scudd. Rep. Peabody Ac. Sci. iv. p. 80².

Alis fuscis, anticis maculis minutis quatuor, duabus in cellula, una supra alteram posita (interdum obsoletis), tertia inter ramos medianos primum et secundum, quarta ultra eam, punctisque tribus in linea transversa subapicalibus, albo-hyalinis: subtus ut supra, sed anticis regione costali et apicali posticisque omnino squamis griseis vestitis; palpis et corpore subtus albidis; ciliis pallide griseis.

♀ mari similis.

Hab. NORTH AMERICA, Southern States, Florida¹.—MEXICO, Guaymas (*G. Mathew*); GUATEMALA, San Gerónimo (*Champion*).—SOUTH AMERICA to Paraguay; ANTILLES, Cuba.

Strecker and Morrison have both sent us specimens of this insect from the Southern United States under the name of *Pamphila osyka*, Edw.*, and we have received others from Brazil from Dr. Staudinger labelled *P. eufala*, with the very brief description of which the present species agrees. We possess numerous examples of both sexes from Georgia, Florida, and Texas, as well as a pair from within our limits. The two spots in the cell are sometimes indistinct or absent, irrespective of sex. Our figure is taken from a male from Florida, as we have received only a somewhat worn example of this sex from Central America. The male dissected is also from the former locality, see Tab. XCV. fig. 18.

2. ***Lerodea dysaules*,** sp. n. (Tab. XCV. figg. 19, 20, ♂.)

Alis fuscis, anticis maculis tribus, una in cellula minuta, secunda majore inter ramos medianos primum et secundum, tertia ultra eam, punctisque tribus in linea transversa, omnibus albo-hyalinis, macula quoque submediana albida: subtus ut supra, sed anticis regione costali et apicali squamis griseis vestitis; posticis eodem more ornatis, fascia lata curvata obscura a margine costali apicem versus ultra cellulæ finem extendente; ciliis pallide griseis.

♀ mari similis, maculis in cellula et inter ramos medianos secundum et tertium minus distinctis.

Hab. MEXICO, Venta de Zopilote in Guerrero (*H. H. Smith*).

Mr. Smith procured us a pair of this species from Western Mexico.

L. dysaules is very like *L. eufala*, but differs from it in having a single spot only in the cell of the primaries, and also in having a curved dark band running from the costa to beyond the end of the cell on the underside of the secondaries.

* This species is described as having the primaries immaculate, and with a long brand in the male.

STOMYLES.

Stomyles, Scudder, Rep. Peabody Ac. Sci. iv. p. 76 (1872).

This genus, the type of which is *Pyrgus textor*, Hübn., is sunk by Watson as a synonym of *Amblyscirtes*; but as the male has a differently shaped brand*, and the second median segment of the primaries is also a little lengthened to make room for the upper portion of it, we retain the two as distinct. The lower radial nervure is slightly depressed at the base, as in certain species of *Amblyscirtes*; the terminal joint of the palpi also varies in length according to the species, being rather short in *S. textor* and others, and moderately long and erect in *S. nereus*. The brand of the male is formed of two longitudinal streaks, one running beneath the entire length of the second median segment and a second under the first median branch, this latter in *S. textor* extending nearly to the base of the wing; in *S. florus* there is an additional piece just above the submedian nervure. In all other respects *Stomyles* agrees with *Amblyscirtes*, and the genitalia of the males are also very similar. In addition to *Pyrgus textor*, Hübner, the genus includes *Amblyscirtes tolteca*, Scudd., *Hesperia nereus*, Edw., and possibly *H. comus*, Edw., as well as a new species from Mexico described below.

a. Terminal joint of the palpi short.

1. *Stomyles tolteca*. (Tab. XCV. figg. 21, 22, 23, ♂.)

Amblyscirtes tolteca, Scudd. Rep. Peabody Ac. Sci. iv. p. 76 (1872)¹.

Alis nitide fuscis, stigmatæ concolore, anticis puncto duplici in cellula, tribus in linea transversa subapicalibus, quinque in serie sinuosa obliqua a margine interno prope apicem extendente, albis; posticis punctis minutis variis discalibus fere obsoletis: subtus ut supra, sed anticis punctis magis obviis, punctis sex aut septem in serie submarginali flexuosa, aliis quatuor basin propioribus, albis.

♀ mari similis.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Acapulco (*J. J. Walker*), Jalapa (*coll. Schaus*), Valladolid in Yucatan (*Gaumer*), Tehuantepec¹.

We have two females from Yucatan and two males from Western Mexico which we assign to this species; there is also a male of it in Mr. Schaus's collection. The male from Acapulco differs slightly from the rest in having the white spots of the primaries larger. Scudder's types, from Tehuantepec, male and female, have been examined.

S. tolteca resembles *Amblyscirtes nanno* (Edwards), but differs from it in having a double white spot in the cell of the primaries; the outer oblique series of spots is more sinuous; and the male has a differently shaped brand. For the genitalia of the male, see Tab. XCV. fig. 23.

* The North-American *A. samoset*, Scudd., differs again from *Amblyscirtes* in the shape of the brand, the upper piece being elongate-triangular, and the lower piece in the form of a longitudinal streak. This insect, however, has the first branch arising from very near the base of the median nervure.

2. *Stomyles florus*, sp. n. (Tab. XCV. fig. 24, ♂.)

Alis nitide fuscis, stigmatе concolore: subtus ut supra, sed squamis albidis sparsim vestitis; ciliis griseis, fusco maculatis; palpis subtus albidis.

♀ ignota.

Hab. MEXICO, Sierra Madre de Tepic (*Richardson*).

A single worn specimen only of this obscure species has been received. It is very like *Amblyscirtes fluonia*, but has a much shorter terminal joint to the palpi; the brand of the primaries is differently shaped (the streak below the first median branch being much more extended), and there is an additional piece just above the submedian nervure (as in *Amblyscirtes folia* and *A. elissa*); the under surface of the wings is also darker and more uniformly coloured, the scattered whitish scales being very conspicuous. For the genitalia of the male, see Tab. XCV. fig. 24.

3. *Stomyles comus*. (Tab. XCV. figg. 25, 26, ♀.)

Hesperia comus, W. H. Edwards, Trans. Am. Ent. Soc. v. p. 203¹.

Pamphila comus, Aaron, Papilio, iv. p. 181².

Amblyscirtes comus, Watson, P. Z. S. 1893, p. 80³.

Amblyscirtes nilus, W. H. Edwards, Field & Forest, iii. p. 118⁴.

♀. Alis nitide griseo-fuscis, anticis punctis minutis tribus in linea transversa subapicalibus, aliis tribus in serie obliqua infra et ultra cellulam, albis: subtus pallidioribus, anticis punctis ut supra, sed magis obviis, posticis punctis novem, sex in linea margini externo subparallelibus, aliis tribus basin propioribus.

Hab. NORTH AMERICA, Texas^{1 2 4}.—MEXICO, Northern Sonora (*Morrison*).

Morrison sent us a single female example of this insect from Sonora, which agrees very well with Edwards's description. According to Mr. Aaron², *S. comus* is not uncommon in the Gulf-region of Texas.

As we have not a male at hand for examination, the species may not be correctly placed here.

b. Terminal joint of the palpi moderately long and rather slender.

4. *Stomyles nereus*. (Tab. XCV. figg. 27–30, ♂.)

Hesperia nereus, W. H. Edwards, Trans. Am. Ent. Soc. v. p. 207¹.

Pamphila nereus, W. H. Edwards, Papilio, ii. p. 139².

Alis nitide fuscis, stigmatе concolore, anticis punctis subapicalibus quatuor in linea transversa, infimo minutissimo, aliis tribus in linea obliqua infra et ultra cellulam, omnibus albis; posticis punctis subobsoletis in linea margini exteriori subparallelibus: subtus anticis fere ut supra, sed punctis duobus obsoletis, posticis griseis punctis octo, quinque in linea margini externo parallelibus, tribus basin propioribus albis.

♀ mari similis.

Hab. NORTH AMERICA, Arizona^{1 2}.—MEXICO, Northern Sonora (*Morrison*).

We are also indebted to Morrison for three males of this species from Fort Grant,

as well as for a single female from Sonora ; Mr. Edwards received his specimens from Arizona from the same collector. It resembles *S. comus*, but is a good deal larger, the terminal joint of the palpi is longer, and the lower oblique row of spots on the primaries is much more distinct. For the genitalia of the male, see Tab. XCV. fig. 30.

AMBLYSIRTES.

Amblyscirtes, Scudder, Rep. Peabody Ac. Sci. iv. p. 75 (1872) ; Butt. E. U. S. & Canada, ii. p. 1575 (1889) ; Watson, P. Z. S. 1893, p. 80 (part.).

The type of *Amblyscirtes* is *A. vialis* (Edw.), and it includes various other North-American forms, as well as several from Mexico. In *A. vialis* and *A. ænus* (Edw.) the lower radial nervure of the primaries is straight (the discocellulars being equal in length), whereas in some of the other species (*A. nanno* &c.) it is slightly depressed at the base. The primaries of the male have a faint, oblique, interrupted brand, this being quite rudimentary in *A. vialis** and more or less distinct in the other species. The terminal joint of the palpi is moderately long in *A. vialis* and others, and short in *A. nanno*, *A. folia*, &c. The genitalia of the males of all the species dissected are very similar in structure, and we therefore place these insects under the one genus, *Amblyscirtes*.

The antennæ are less than half the length of the costa, and have a stout club, terminating in a short crook. The third joint of the palpi is moderately long and erect (*A. vialis* &c.), or short and conical (*A. nanno* &c.). The primaries are blunt at the tip; the cell is considerably less than two-thirds the length of the costa; the discocellulars are oblique, the lower one sometimes a little shorter than the upper; the lower radial is not or only slightly depressed at the base; the first branch arises a little before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are faint. The body is moderately stout. The middle tibiæ are spined, the hind tibiæ have two pairs of spurs. The primaries of the male have a narrow, oblique, interrupted brand, extending from the base of the second median branch to below the first; in *A. folia* and *A. elissa* it is continued in the direction of the submedian nervure by an isolated additional piece.

The species, so far as we know at present, are confined to Mexico and the United States, but we have females of an insect from Brazil which may belong here. All of them have the cilia more or less spotted. Notwithstanding the very different form of the antennæ, Watson placed this genus next to *Butleria*, with which it has little affinity.

* It disappears entirely in this insect when the larger scales are removed.

a. Terminal joint of the palpi short.1. **Amblyscirtes nanno.** (Tab. XCV. figg. 31-34, ♂.)*Amblyscirtes nanno*, W. H. Edwards, Papilio, ii. p. 142¹.

Alis fuscis, squamis fulvis aspersis, stigmatе obscuriore, anticis punctis tribus in linea transversa subapicalibus, aliis quatuor in linea obliqua infra et ultra cellulam fere ad marginem externum extendentibus, albis, interdum quoque uno in cellula: subtus ut supra, sed anticis punctis magis distinctis; posticis squamis albidis sparsim vestitis, punctis quinque margini externo subparallelibus, aliis tribus basin propioribus, albis.

♀ anticis maculis magis distinctis.

Hab. NORTH AMERICA, Arizona¹.—MEXICO, Northern Sonora (*Morrison*), Bolaños (*Richardson*), Orizaba (*coll. Schaus*).

Under the above name we have received five males and one female from Northern Sonora, and a worn male from Bolaños seems to belong to the same species. Edwards's description of *A. nanno*, which was taken from a single female from Arizona, agrees well with others of the same sex in our collection and with one in that of Mr. Schaus. A specimen from Sonora is figured. For the genitalia of the male, see Tab. XCV. fig. 34.

2. **Amblyscirtes folia**, sp. n. (Tab. XCV. figg. 35, 36, ♂.)

Alis nitide fuscis, squamis fulvis sparsim tectis, stigmatе obscuriore, anticis puncto in cellula, tribus in linea transversa subapicalibus, tribus aut quatuor in serie obliqua infra et ultra cellulam, albis: subtus ut supra, sed anticis punctis magis distinctis, plaga ad angulum analem sordide alba; posticis squamis griseis sparsim vestitis, punctis quinque in serie submarginali aliisque tribus basin propioribus, albis.

♀ mari similis.

Hab. MEXICO, Chilpancingo (*H. H. Smith*), Lake Chapala (*Richardson*).

We have received a pair of this insect from Chilpancingo and a female captured near Lake Chapala. *A. folia* is closely allied to *A. nanno*, Edwards, but is much larger and has a broad whitish patch at the anal angle of the primaries beneath; the secondaries, also, are less mottled beneath.

b. Terminal joint of the palpi rather long.3. **Amblyscirtes fluonia**, sp. n. (Tab. XCV. figg. 37, 38, 39, ♂.)

Alis nitide fuscis, squamis fulvis tectis, stigmatе fusco, anticis punctis minutis tribus in linea transversa subapicalibus, duobus in linea obliqua infra et ultra cellulam subovatis, sordide flavis: subtus anticis pallidioribus, punctis minus obviis, posticis griseo irroratis.

♀ mari similis, sed punctis omnibus fere obsoletis.

Hab. MEXICO, Amula, Xucumanatlan, and Chilpancingo, all in Guerrero (*H. H. Smith*), Lake Chapala (*Richardson*), Jalisco (*Schumann*).

Our various collectors have supplied us with a considerable series of this insect from Central and Western Mexico. It is allied to the North-American *A. ænus* (Edwards),

but has the spots on the primaries less distinct and the secondaries without the waved discal line. For the genitalia of the male, see Tab. XCV. fig. 39.

4. *Amblyschirtes elissa*, sp. n. (Tab. XCV. figg. 40, ♀; 41, ♂.)

Alis nitide fuscis, stigmatibus concoloribus, punctis minutissimis tribus in linea transversa subapicalibus, nonnunquam obsoletis, sordide albis: subtus ut supra, sed anticis punctis magis distinctis, puncto in cellula, quatuor in linea obliqua ultra cellulam, albis; posticis punctis sex in serie sinuosa discalibus, uno aliquando duobus, basin propioribus, albis.

♀ mari similis.

Hab. MEXICO, Tierra Colorada, Rincon, Dos Arroyos, all in Guerrero (*H. H. Smith*).

Of this obscure species we have received four males and one female. It resembles *A. fluonia*, but is smaller and has distinct white spots on the underside of the wings. For the genitalia of the male, see Tab. XCV. fig. 41.

HALOTUS, gen. nov.

The single species from Costa Rica referred to this genus has the general coloration and facies of an *Amblyschirtes* or *Stomyles*, the cilia of the wings being spotted as in the insects belonging to those genera; but the form of the brand on the primaries of the male (the genus approaching *Euroto* &c. in this respect), as well as the peculiar structure of the genitalia in this sex, separates it from all of them.

The antennæ are about half the length of the costa, and have a stout club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are moderately elongate, somewhat pointed at the tip, the costa arched at the base; the cell is less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one three times as long as the lower, the latter being shorter than the third median segment; the lower radial is much depressed at the base; the first branch arises before the middle of the median nervure, the second some little distance before the lower angle of the cell. The secondaries are slightly produced at the anal angle; the cell is barely half the length of the wing; the discocellulars are faint. The body is moderately robust. The middle tibiæ are spined, and the hind tibiæ have two pairs of spurs. The primaries of the male have a double brand formed thus: a triangular piece filling the angle between the second median segment and the first median branch, and a short longitudinal streak just below it.

1. *Halotus saxula*, sp. n. (Tab. XCV. figg. 42, 43, 44, ♂.)

Alis fusco-brunneis, stigmatibus obscurioribus, anticis punctis duobus minutis in linea transversa subapicalibus, aliis duobus infra et ultra cellulam, albidis: subtus fuscis, anticis punctis ut supra, eo margini interno propiore lunulato, et striga ad angulum analem, sordide flavis; posticis fascia marginem externum versus undulata pallidioribus; ciliis obscure flavis, nigro maculatis.

♀ ignota.

Hab. COSTA RICA, Irazu, Rio Sucio (*Rogers*).

Only two examples of this species, both males, were sent us by Mr. Rogers from Costa Rica. One of these is labelled as having been compared by Salvin with the type of *Hesperia saxula*, Mab., a description of which we are unable to find. For the genitalia of the male, see Tab. XCV. fig. 44.

VII. Antennæ moderately long (except in *Calpodes* and certain species of *Prenes*), with a long crook; hind tibiæ with two pairs of spurs; primaries of the male with or without a brand.

A. Terminal joint of the palpi short or moderately short*.

CALPODES.

Calpodes, Hübner, Verz. bek. Schmett. p. 107 (1816) (part.); Scudder, Rep. Peabody Ac. Sci. iv. p. 82 (1872); Watson, P. Z. S. 1893, p. 104 (part.).

Under this genus Watson places a number of heterogeneous forms, giving *Papilio ethlius*, Cram., as the type. He states that there are no sexual characters on the fore wings of the male; nevertheless, *C. orchamus*, *C. epitus*, and *C. evadnes* (Cram.) are branded in this sex. *C. nero* (Fabr.), *C. ares* (Feld.), and *C. ocola* (Edw.), the males of which are not branded, are here referred to *Prenes*, and the remainder belong elsewhere. *Calpodes*, as restricted by us, includes *C. ethlius* only. It is allied to *Prenes*, but differs in having a relatively narrower cell in the primaries (the third median segment of which is much longer), the first branch arises nearer the base of the median nervure, and the second is strongly curved, and the discocellulars of the secondaries are shorter.

The antennæ are barely more than one-third the length of the costa, and have a short, stout club, terminating in a moderately long crook. The palpi have the third joint very short, stout, and bluntly conical, almost concealed. The primaries are narrow, very elongate, and pointed at the tip; the cell is fully two-thirds the length of the costa, narrow and greatly produced at the apex; the discocellulars are very oblique, the upper one about twice the length of the lower, which is itself only half the length of the third median segment; the lower radial is depressed at the base; the first branch arises a little before the middle of the median nervure, and the second at some distance before the lower angle of the cell, the second being strongly curved. The secondaries are lobed at the anal angle; the discocellulars are short, faint, and strongly oblique. The body is very robust. The middle and hind tibiæ are spined, the latter with two pairs of spurs. The primaries are without trace of a brand in the male.

C. ethlius is a common Tropical-American insect, extending northward to the Southern United States and southward to the Argentine Republic, and occurring also in most of the West-Indian Islands. It is of very powerful flight. The neuration of the fore wing is figured on Tab. XCV. fig. 45.

* Longer in the genus *Vinius*.

1. *Calpodes ethlius*. (Tab. XCV. figg. 45, 46, ♂.)

Papilio ethlius, Cram. Pap. Ex. iv. p. 212, t. 392. ff. A, B¹.

Calpodes ethlius, Scudd. Butt. E. U. S. & Canada, ii. p. 1750, t. 17. f. 14²; Watson, P. Z. S. 1893, p. 105³; Godm. & Salv. P. Z. S. 1896, p. 520⁴.

Hesperia chemnis, Fabr. Ent. Syst. iii. p. 331⁵.

Eudamus olynthus, Boisd. et Lec. Lép. Amér. Sept. t. 75. ff. 1, 2⁶.

Alis fuscis, maculis quatuor in serie obliqua curvata infra et ultra cellulam, ea apicem proxima minutissima, tertia subquadrata maxima, macula in cellula punctisque duobus subapicalibus, posticis maculis tribus in linea transversa apicem versus, omnibus hyalinis; anticis ad basin, posticis dimidio interno, pilis fulvis vestitis: subtus pallidioribus, maculis ut supra, anticis area discali late nigro-fusca; ciliis (nisi ad apicem anticearum) sordide ochraceis.

♀ mari similis.

Hab. NORTH AMERICA⁶, South-eastern States².—MEXICO, Durango city (*Becker*), Coatepec, Jalapa (*coll. Schaus*), Atoyac (*Schumann, H. H. Smith*); GUATEMALA, Chisoy Valley (*F. D. G. & O. S.*), San Gerónimo, Dueñas (*Champion*).—SOUTH AMERICA to the Argentine Republic; ANTILLES, Cuba, Jamaica, Puerto Rico, Dominica, Grenada⁴, St. Vincent⁴.

For the genitalia of the male, see Tab. XCV. fig. 46.

PRENES.

Prenes, Scudder, Rep. Peabody Ac. Sci. iv. p. 81 (1872); Butt. E. U. S. & Canada, iii. p. 1865.

The type of this genus, which was not identified by Watson, is *Hesperia panoquin*, Scudd., and it includes *Hesperia nero*, Fabr., *H. ocola*, Edwards, *Papilio evadnes*, Cram., and various other American species.

It may be recognized by the elongate fore wings, which have the cell nearly or quite two-thirds the length of the costa, the hind wings are slightly lobed at the anal angle, the third joint of the palpi is short, and the male, except in *P. evadnes*, is without trace of a brand on the primaries. The antennæ vary somewhat in length, being shorter in *P. panoquin* and *P. ocola* than in the other species.

P. philippina has a more slender club, and *P. eugeon*, G. & S., from the Antilles, a shorter crook, to the antennæ, and they may not really belong here. *P. evadnes* is obviously very closely allied to *P. nero* and *P. pauper*, and we do not hesitate to place them in the same genus; these three species are very much larger than *P. panoquin*, and have a different facies.

The antennæ are rather short and have a stout club, terminating in a moderately long crook. The palpi have the third joint very short and bluntly conical. The primaries are elongate and narrow, concave on their outer margin; the cell is nearly or quite two-thirds the length of the costa; the discocellulars are very oblique, the lower one very much shorter than the upper; the lower radial is more or less depressed

at the base; the first branch arises a little beyond the middle of the median nervure and the second close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the lower discocellular is distinct, the upper one faint. The body is hairy beneath and robust. The hind tibiæ have two pairs of spurs; the middle tibiæ are not spined.

The primaries in the male of *P. evadnes* have a very narrow, linear, oblique, interrupted brand extending from the base of the second median branch to the middle of the submedian nervure (see Tab. XCV. fig. 47), but there is no trace of this in the other species.

Prenes extends throughout Tropical America, including the Antilles, and reaches as far north as the Southern United States. *P. pauper*, one of the largest species of the genus, bears a strong resemblance to *Proteides idas*.

The genitalia of the males are very similar in the specimens of the six species we have dissected.

- a.* Primaries of the male with a narrow, linear, oblique, interrupted brand;
secondaries with a silvery fascia beneath.

1. ***Prenes evadnes*.** (Tab. XCV. figg. 47, 48, ♂.)

Papilio evadnes, Cram. Pap. Exot. t. 343. ff. G, H¹.

Proteides evadnes, Staud. Exot. Schmett. p. 297, t. 99. fig.²

Calpodes evadnes, Wats. P. Z. S. 1893, p. 105³.

Alis fuscis, stigmatе grisescente, anticis basin versus et posticis (nisi ad marginem externum) squamis et pilis obscure fulvis vestitis; anticis maculis tribus in linea obliqua, una ad venam submedianam, secunda majore et subtriangulari inter ramos medianos primum et secundum, tertia parva ultra eam, una in cellula externe excavata, punctisque duobus aut tribus subapicalibus in linea transversa, omnibus flavo-hyalinis: subtus rubescentibus, anticis area mediana nigro-fuscis, maculis ut supra, apicem versus interdum fasciola curvata violaceo-grisea notata; posticis fascia lata conspicua ultra cellulam a costa angulum analem versus extendente argentea; fronte, palpis et abdomine subtus sordide ochraceis; capite supra virescente.

♀ mari similis.

Hab. GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panzos (*Conradt*), San Gerónimo (*F. D. G. & O. S., Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Chontales (*Janson*); COSTA RICA (*Van Patten*); PANAMA, Chiriqui² and Veraguas (*Arcé*).—SOUTH AMERICA to Brazil.

This is a common Tropical-American insect, extending from Guatemala to Brazil. There is a slight amount of variation in the width of the silvery band on the underside of the secondaries; the inner margin, too, of the band is in some specimens nearly straight, and in others strongly angulate at the end of the cell, as shown in Cramer's figure. For the genitalia of the male, see Tab. XCV. fig. 48.

b. Primaries of the male without a brand.

a'. Secondaries with an interrupted angulated white fascia beneath.

2. Prenes pauper. (Tab. XCVI. figg. 1, 2, 3, ♂.)

Proteides pauper, Mab. Petites Nouv. Ent. ii. p. 201 (1878) ¹.

Alis fuscis, triente basali et corpore supra squamis et pilis ochraceis vestitis, macula parva in cellula, altera sagittiforme inter ramos medianos primum et secundum, tertia ultra eam parva, quarta elongata in vena submediana punctisque tribus (interdum duobus) in linea transversa subapicalibus, omnibus albo-hyalinis: subtus dilutioribus, anticis macula in vena submediana majore et albida; posticis vitta sinuata ultra cellulam vena divisa angulum analem versus, macula costali apicem versus, albis; alis ambabus externe chalybeo-griseo tinctis; palpis griseis; abdomine subtus et ciliis ad angulum analem posticarum albis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*), Jalapa, Paso de San Juan in Vera Cruz (*coll. Schaus*); GUATEMALA, Cahabon (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*). —COLOMBIA ¹.

We have seen ten specimens of this species from within our limits, agreeing with the Colombian type. *P. pauper* resembles *P. evadnes* (Cram.), but differs from it chiefly in having the band on the underside of the secondaries white, not silvery, and reduced to spots at its two extremities; the hyaline spot in the cell of the primaries is small, and the brand is absent. The sinuous interrupted band on the underside of the secondaries distinguishes it from *P. nero*, of which it is also a close ally. For the genitalia of the male, see Tab. XCVI. fig. 3.

b'. Secondaries usually with a distinct transverse white fascia beneath.

3. Prenes nero. (Tab. XCVI. figg. 4, ♂; 5, 6, ♀; 7, var. *corrupta*, ♂.)

Hesperia nero, Fabr. Ent. Syst., Suppl. p. 433 ¹.

Epargyreus nero, Butl. Cat. Fabr. Diurn. Lep. p. 275, t. 2. f. 13 ².

Calpodes nero, Wats. P. Z. S. 1893, p. 105 ³.

Hesperia nyctelius, Latr. Enc. Méth. ix. p. 746 ⁴.

Goniloba corrupta, Herr.-Schäff. Corresp.-Blatt. Regensb. xix. p. 54 (1865) ⁵; Prodr. Syst. Lep. iii. p. 73 ⁶.

Goniloba sylvicola, Herr.-Schäff. Corresp.-Blatt. Regensb. xix. p. 55 (1865) ⁷.

Prenes sylvicola, Scudd. Rep. Peabody Acad. Sci. iv. p. 81 (1872) ⁸.

Hesperia fusina, Hew. Descr. n. sp. Hesperidæ, p. 30 (1867) ⁹.

Hesperia fufidia, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 81 (1877) ¹⁰.

Alis obscure fuscis, anticis macula parva in cellula, quatuor in serie obliqua, una elongata in vena submediana, secunda majore et sagittiforme inter ramos medianos primum et secundum, tertia ultra eam, quarta (interdum absente) minuta apicem propiore punctisque duobus (interdum uno) in linea transversa subapicalibus, omnibus flavo-hyalinis: subtus ut supra, sed dilutioribus, litura submediana albida; posticis fascia maculari a margine costali apicem versus ultra cellulæ finem extendente albida; palpis griseis; abdomine subtus albo.

♀ mari similis.

Hab. MEXICO, Dos Arroyos and Rio Papagaio in Guerrero (*H. H. Smith*), Jalapa (*coll. Schaus*); HONDURAS (*Dyson*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Chiriqui (*mus. Staudinger*).—SOUTH AMERICA, Amazons to Brazil⁴; ANTILLES, Cuba, Jamaica, Puerto Rico, Dominica.

To this species we refer a long series of examples from Central and South America and from the Antilles. They vary greatly in size and in the development of the transverse white band on the underside of the secondaries, this being sometimes broad (as in *G. corrupta*, H.-S., and *H. fufidia*, Hew.) and sometimes narrow and broken up into spots (as in *H. fusina*, Hew.), and between these we have numerous intermediates. In most of the large specimens the head and thorax are tinged with green and the antennæ are more elongate. There is sometimes an indistinct oblique band of fulvous spots on the upperside of the secondaries, indicating the position of the white band beneath. In some examples the spot in the cell of the primaries above is elongate.

We have dissected three males from widely separated localities, and the genitalia show no difference: see Tab. XCVI. fig. 4.

Two specimens of the insect are shown on our Plate: a female from Guerrero and a male of the var. *corrupta* from Chiriqui.

c'. Secondaries without a distinct white fascia beneath.

4. **Prenes philippina.** (Tab. XCVI. figg. 8, 9, ♂.)

Cobalus philippina, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 81.

Alis nigro-fuscis, anticis maculis quatuor in linea obliqua (una ad venam submedianam ochracea), secunda subquadrata maxima inter ramos medianos primum et secundum, aliis duabus ultra eas minoribus, punctisque duobus recurvatis, flavo-hyalinis: subtus ut supra, sed pallidioribus, anticis macula submediana elongata, altera ramum medianum primum propiore albidis; posticis squamis flavidis sparsim ornatis; capite supra virescente.

♀ nobis ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

A single worn male of this species has been lent us by Dr. Staudinger under the above name. It is not unlike *P. ares*, but the spots on the primaries are differently placed. There is no band on these wings.

5. **Prenes ares.** (Tab. XCVI. figg. 10, 11, 12, ♂.)

Hesperia ares, Feld. Verh. zool.-bot. Ges. Wien, 1862, p. 477¹.

Calpodes ares, Watson, P. Z. S. 1893, p. 105².

Goniloba coscinia, Herr.-Schäff. Corresp.-Blatt. Regensb. xix. p. 54³.

Calpodes coscinia, Godm. & Salv. P. Z. S. 1896, p. 520⁴.

Alis fuscis, anticis macula magna subquadrata inter ramos medianos primum et secundum, altera ultra eam minore, duabus parvis transversis in cellula, punctis tribus in linea transversa subapicalibus (interdum macula parva in vena submediana), omnibus hyalinis: subtus pallidioribus, maculis ut supra, litura

irregulariter elongata inter venam submedianam et ramum medianum primum flavescente; anticis ad apicem et posticis ad basin, fasciaque transversa ultra cellulam, griseis; posticis macula subcostali basin versus nigrescente; ciliis (nisi ad apicem anticarum) sordide ochraceis.

♀ mari similis.

Hab. MEXICO, Tierra Colorada and Rincon in Guerrero (*H. H. Smith*); GUATEMALA, Chisoy Valley (*F. D. G. & O. S.*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA (*Van Patten*); PANAMA, Chiriqui (*ex Staudinger*).—SOUTH AMERICA to Brazil¹; ANTILLES, Cuba, Haiti, Puerto Rico, Jamaica, Dominica, Grenada⁴, St. Vincent⁴.

In the British Museum this species is named *Hesperia ares*, Feld., and we have accepted this determination as correct, though the insect does not agree very well with the description*. Dr. Staudinger has sent us examples of it under the name *Proteides coscinia*, H.-S.

Ten specimens have been seen from within our limits, agreeing with a long series from various South-American and Antillean localities. *P. ares* appears to be a very common insect in the islands of Grenada and St. Vincent. A male from Tierra Colorada is figured. For the genitalia, see Tab. XCVI. fig. 12.

6. *Prenes ocola*. (Tab. XCVI. figg. 13, 14, 15, ♂.)

Hesperia ocola, W. H. Edwards, Proc. Ent. Soc. Phil. ii. p. 20, t. 11. f. 4 (1863)¹.

Prenes ocola, Scudd. Rep. Peabody Ac. Sci. iv. p. 81²; Butt. E. U. S. & Canada, iii. p. 1866³.

Calpodes ocola, Wats. P. Z. S. 1893, p. 105⁴.

Prenes hecebolus, Scudd. Rep. Peabody Ac. Sci. iv. p. 81⁵.

Pamphila ortygia, Möschl. Verh. zool.-bot. Ges. Wien, 1882, p. 328⁶.

Pamphila parilis, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxxi (1891)⁷.

Alis griseo-fuscis, anticis macula parva in cellula (interdum absente), tribus in linea obliqua, una elongata submediana (interdum obsoleta), secunda sagittiforme inter ramos medianos primum et secundum, tertia ultra eam, punctisque duobus (interdum uno) in linea transversa subapicalibus, omnibus hyalinis: subtus ut supra, sed dilutioribus, anticis macula submediana majore; palpis et corpore subtus griseis.

♀ mari similis.

Hab. NORTH AMERICA, South-eastern States^{1 2 3}.—MEXICO, Rincon, Tierra Colorada, Dos Arroyos, Rio Papagaio, and Omilteme in Guerrero, Atoyac, Teapa (*H. H. Smith*), Coatepec (*coll. Schaus*), Tehuantepec (*Scudder*⁵); GUATEMALA, Santa Maria (*Richardson*), San Gerónimo (*Champion*); HONDURAS⁷ (*Dyson*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*mus. Staudinger*⁷).—SOUTH AMERICA to Peru.

This is a very common American species, ranging from the Southern United States to Brazil and Peru. It is a close ally of *P. nero*, but differs in being smaller and paler, and it has fewer hyaline spots on the primaries; there is at most the merest indication of the band of white spots crossing the underside of the secondaries.

Mr. Strecker has sent us specimens of *H. ocola* from Georgia, and we have seen the types of *P. hecebolus*, Scudder, *P. ortygia*, Möschler (from Guiana), and *P. parilis*,

* The type of *Hesperia ares* cannot be found in the Felder collection, now at the Tring Museum.

Mabille; these show no tangible differences. We have examined upwards of one hundred specimens.

Two males have been dissected, one from Florida, the other from Atoyac; their genitalia scarcely differ from those of *P. nero*: see Tab. XCVI. fig. 15.

Our figure of the insect is taken from a specimen from Tierra Colorada, that given by Edwards being scarcely recognizable.

7. *Prenes vala*. (Tab. XCVI. figg. 16, 17, 18, ♂.)

Pamphila vala, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxxvi (1891) ¹.

Pamphila actor, Mab. loc. cit. p. clxxxii ².

Alis fuscis, anticis maculis parvis tribus, una in cellula (interdum obsoleta), duabus infra eam, ea inter ramos medianos primum et secundum transversa, punctis duobus (interdum uno) minutis in linea transversa subapicalibus, omnibus hyalinis: subtus pallidioribus, maculis ut supra, striga supra venam submedianam angulum analem versus albescente; posticis linea transversa maculosa fere obsoleta ultra cellulam pallida; corpore et palpis subtus pilis canescentibus.

♀ mari similis, sed obscuriore, supra maculis minoribus, iis in cellula et punctis subapicalibus absentibus.

Hab. MEXICO, Paso de San Juan (*coll. Schaus*), Orizaba (*H. J. Elwes*), Atoyac, Fortin, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Chiriqui ^{1 2} (*mus. Staudinger, Ribbe*).—SOUTH AMERICA to Brazil.

This species, which we somewhat doubtfully refer to the present genus, is not uncommon in Central America, whence we have numerous examples. Dr. Staudinger has lent us the type of *Pamphila vala*, as well as a specimen of *P. actor* determined by Mabille; both are males. He has also sent us examples labelled *Pamphila dama*, H.-S., *P. tripuncta*, H.-S., and *P. orope*, Plötz (= *corope*, H.-S.). We fail to see any differences between these insects, and as none of them seem to accord with Herrich-Schäffer's descriptions, we adopt the name *P. vala*, Mab., for it.

The females have the primaries blunt at the apex, and the wings in this sex often have a purplish lustre on the upperside. We have dissected two males, one from Chapada, Brazil, and the other from Atoyac, Mexico; and these show no difference, the genitalia being very peculiarly formed: see Tab. XCVI. fig. 18.

Our figure of the insect is taken from Mabille's type of *P. vala*.

CYDRUS, gen. nov.

The single Central-American species for which we propose the above generic name is very like *Prenes* and *Calpodes* in the shape of the wings, the primaries being greatly produced, and concave on their outer margin; these wings, however, have a large oblique band in the males, which is not the case in either of the genera mentioned.

The antennæ are about half the length of the costa and have a rather short club, terminating in a long crook. The third joint of the palpi is very short and bluntly conical. The primaries are narrow, greatly produced, arched on the costa at the base,

blunt at the tip, and concave on the outer margin; the cell is three-fifths the length of the costa; the discocellulars are very oblique, the upper one three times as long as the lower, the latter about half the length of the third median segment; the first branch arises considerably before the middle of the median nervure, the second a little before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are oblique, the upper one faint. The body is robust. The middle tibiæ are furnished with long spines, the hind tibiæ with two pairs of spurs. The primaries of the male have a broad oblique brand extending from near the base of the second median branch to the submedian nervure slightly before the middle, filling the angle between the second median segment and the first median branch.

1. *Cydrus nævolus*, sp. n. (Tab. XCVI. figg. 19, 20, 20 *a*, 21, ♂.)

Alis fuscis, stigmatibus obscuriore, anticis maculis tribus in linea obliqua, una ad venam submedianam, secunda elongata et irregulari inter ramos medianos primum et secundum, tertia ultra eam subquadrata, duabus in cellula, quatuor subapicalibus in linea obliqua, omnibus albo-hyalinis; posticis macula ad cellulæ finem, quatuor aut quinque ultra eam in linea curvata transversa, fere obsoletis, flavidis: subtus ut supra, alis purpureo tinctis, posticis maculis magis distinctis et squamis albidis sparsim vestitis; palpis griseis.

♀ mari similis.

Hab. MEXICO, Coatepec (*coll. Schaus*), Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA, Rio Chisoy (*F. D. G. & O. S.*); PANAMA, Chiriqui (*mus. Staudinger*).—BRAZIL, Chapada.

Of this species we have seen four males and three females, six of which are from Central America. The specimen lent us by Dr. Staudinger is unnamed. A male from Coatepec is figured. For the genitalia, see Tab. XCVI. fig. 21.

AIDES.

Aides, Billberg, Enum. Ins. p. 81 (1820).

Watson places *Papilio epitus*, Cram., under *Calpodes*, but this insect does not agree with his definition of that genus, while at the end of his paper (*l. c.*) he again notices it as the type of *Aides*, Billb. We here adopt Billberg's name for Cramer's species, and associate with it *Hesperia æstria*, Hew., and two nearly allied forms*, all from Tropical America, one of them not entering our limits. They have a large irregular silvery patch, sometimes divided into spots, on the disc of the secondaries beneath.

The antennæ are moderately long, with a stout, elongate club, terminating in a long crook. The palpi are densely scaled, the third joint very short and almost concealed. The primaries are elongate, concave on the outer margin, and rather blunt at the tip;

* In one of these the brand is in four pieces, and this will probably prove to be the case in *A. æstria* and *A. dysoni* also.

the cell is two-thirds the length of the costa, and considerably produced at the apex; the discocellulars are strongly oblique, the upper one four times as long as the lower, the latter shorter than the third median segment; the lower radial is much depressed at the base; the first branch arises before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are produced at the anal angle; the cell is more than half the length of the wing; the discocellulars are very oblique, the lower one distinct, the upper one barely traceable. The body is very robust. The hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous brand, formed of three or four pieces: an elongate >-shaped mark placed in the angle between the second median segment and the first median branch, a longitudinal streak below this, and a similar streak along the upper, and sometimes another along the lower, edge of the submedian nervure.

a. Brand on the primaries of the male formed of four pieces.

1. **Aides epitus.** (Tab. XCVI. figg. 22, 23, ♂.)

Papilio epitus, Cram. Pap. Exot. t. 343. ff. E, F¹.

Calpodes epitus, Wats. P. Z. S. 1893, p. 105².

Alis fuscis, ad basin et corpore supra pilis viridescentibus vestitis, stigmatе grisescente, maculis tribus in linea obliqua, una ad venam submedianam, secunda majore inter ramos medianos primum et secundum, tertia ultra eam, una in cellula externe excavata, punctisque tribus in serie obliqua subapicalibus, flavo-hyalinis; posticis macula apicem versus flavescente: subtus ut supra, sed rubescentioribus, dimidio basali obscuriore, in costa supra maculam cellularem flava; posticis area discali plaga subtriangulari externe excisa, maculis duabus (interdum una) apicem versus argenteis; palpis et abdomine subtus ochraceis.

Hab. PANAMA, Chiriqui (*ex Staudinger*).—SOUTH AMERICA to Brazil.

Dr. Staudinger has sent us a single example of this species from Chiriqui, under the name of *Proteides argyrina*, Staud., and we have others from various places in South America agreeing with it, all these being males. In fresh specimens the hairs on the upper surface of the body and the base of the wings are distinctly greenish. The small silvery spots on the underside of the secondaries are variable in size and shape, and one of them is sometimes absent. We figure the fore wing of a male specimen, to show the position of the brand (Tab. XCVI. fig. 22), and also the genitalia, for which see Tab. XCVI. fig. 23.

2. **Aides dysoni**, sp. n. (Tab. XCVI. fig. 24, ♀.)

♀. Alis fuscis, ad basin et corpore supra pilis ochraceis vestitis, anticis macula in cellula, tribus infra et ultra eam in serie obliqua, una submediana, altera inter ramos medianos primum et secundum, tertia margini externo propiore, omnibus albo-hyalinis: subtus ut supra, sed anticis costa et apice posticisque (angulo anali excepto) rufo lavatis, his macula parva prope cellulæ finem, secunda elongata ultra eam, tertia valde irregulari margini interno propiore et duabus submarginalibus, omnibus argenteis; palpis et pectore subtus flavis.

Hab. HONDURAS (*Dyson, in Mus. Brit.*).

There is a single female of this species in the British Museum. It is a close ally of *Hesperia æstria*, Hew., and we have another very similar unnamed form from Brazil in our collection. *A. dysoni* differs from both these in the position of the silvery spots on the underside of the secondaries.

b. Brand of the primaries formed of three pieces.

3. ***Aides elara***, sp. n. (Tab. XCVI. figg. 25, 26, ♂.)

Alis fuscis, ad basin squamis et pilis fulvis vestitis, stigmatе grisescente, maculis tribus in linea obliqua, una ad venam submedianam, secunda majore inter ramos medianos primum et secundum, tertia ultra eam, una in cellula externe excavata, omnibus flavo-hyalinis; posticis macula apicem versus flavescente: subtus ut supra, sed rubescentioribus, dimidio basali obscuriore, in costa supra maculam cellularem flava, posticis area discali plaga permagna angulata irregulari et externe valde excisa argenteis; palpis et abdomine subtus ochraceis.

♀ ignota.

Hab. MEXICO (*Sallé*); HONDURAS (*Wittkugel, in mus. Staudinger*).

The above description is taken from three male specimens, one from Mexico in our own collection and two from Honduras in that of Dr. Staudinger. *A. elara* is a very close ally of *A. epitus* (Cram.), from which it differs in having no subapical series of spots on the primaries, and in the shape of the large silvery patch on the secondaries beneath; the upper part of the body and the base of the wings are clothed with fulvous (instead of greenish) hairs, and the brand on the primaries in the male is less developed, the streak below the submedian nervure being absent.

The Mexican specimen is figured.

PARAIDES, gen. nov.

We take as the type of this genus *Hesperia ocrinus*, Plötz, and associate with it *Hesperia ægita*, Hew., and a nearly allied form from Venezuela*. They all have silvery spots on the underside of the secondaries, as in the genus *Aides*. It differs from *Calpodes*, as here understood, in the neuration of the primaries, and in the presence of a peculiar brand in the male; this, however, is absent in *P. ægita*.

The antennæ are moderately long, with an elongate, rather stout club, terminating in a long crook. The palpi have the first and second joints densely clothed with scales, the third bluntly conical, very short and concealed. The primaries are elongate, blunt

* ***Paraides asilas***, sp. n.

P. ocrino similis, sed macula posticarum minore: subtus posticis maculis quatuor, una parva ad cellulæ finem, secunda elongata angulum analem propiore, aliisque duabus submarginalibus, argenteis.

Hab. VENEZUELA, Angostura.

Very like *P. ocrinus*, but the white spot on the secondaries above is indistinct (as in *P. ægita*), and these wings have two small silvery spots beneath, instead of the large one occupying the disc, and the upper submarginal spot is absent.

at the tip, and concave on the outer margin; the cell is nearly two-thirds the length of the costa and greatly produced; the discocellulars are strongly oblique, the upper one twice the length of the lower, the latter not longer than the third median segment; the lower radial is depressed at the base; the first branch arises a little before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are lobed at the anal angle; the discocellulars are strongly oblique, the lower one distinct, the upper one faint. The body is very robust. The middle tibiæ are furnished with short spines, and the hind tibiæ with two pairs of spurs. The primaries of the male (except in *P. ægita*) have a brand formed of three spots placed thus: one above and another below the first median branch at some distance from the base, and one touching the submedian nervure on its upper edge.

The present genus agrees with *Aides* in the shape of the wings, but the brand is formed as in *Xeniades*.

The three species are all from Tropical America, only one of them entering our limits.

1. *Paraides ocrinus*. (Tab. XCVI. figg. 27–30, ♂.)

Hesperia ocrinus, Plötz, Stett. ent. Zeit. 1882, p. 337¹.

Proteides ocrinus, Möschl. Verh. zool.-bot. Ges. Wien, 1882, p. 325, t. 17. fig. 15².

Alis nigro-fuscis, ad basin et dimidio interno squamis et pilis obscure fulvis notatis, stigmatibus griseis, maculis tribus in linea obliqua, una ad venam submedianam, secunda majore inter ramos medianos primum et secundum, tertia ultra eam, una quoque in cellula, omnibus hyalinis; posticis apicem versus macula flava: subtus ut supra, anticis macula elongata in costæ medio, dimidio apicali anticarum posticisque dimidio costali squamis ochraceis dense vestitis; posticis plaga discali et maculis tribus minoribus margini interno propioribus argenteis; ciliis alarum (apicibus exceptis) albis; palpis et abdomine subtus ochraceis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*ex Staudinger*).—COLOMBIA¹; GUIANA, Paramaribo²; AMAZONS; BRAZIL.

This species is extremely like the South-American *P. ægita* (Hew.), with which we had at first confounded it. The types of each, which we have seen, are of the female sex, that of *P. ocrinus* having a distinct spot on the secondaries above, this being barely indicated in *P. ægita*; the male, however, of *P. ocrinus* has a brand formed of three spots on the primaries, of which there is no trace in *P. ægita*. Dr. Staudinger has sent us males of the present species under the MS. names of *Proteides argyrina*, Staud., and *P. callidemas*, Mab., and we possess several others from Matto Grosso. Of *P. ægita* we have a single male from Colombia, sent us by Wheeler, as well as a female from the Kaden collection. The form of the brand on the primaries of the male at once distinguishes *P. ocrinus* from several somewhat similarly coloured species. We figure the fore wing of a male to show the position of the brand (Tab. XCVI. fig. 29); also the genitalia, for which see Tab. XCVI. fig. 30.

The insect shown on our Plate is from Chiriqui.

XENIADES, gen. nov.

We take *Papilio orchamus*, Cram., a species placed in *Calpodes* by Watson, as the type of this genus; it also includes *Hesperia chalestra*, Hew., and a closely allied form described below. These insects agree with *Paraides* in the shape of the brand on the primaries in the male, but differ from it in having the outer margins of both wings almost straight to near the tip and the genitalia of the males very dissimilarly formed. All three species have a transverse silvery band crossing the underside of the secondaries.

The antennæ are moderately long, with a stout elongate club, terminating in a long crook. The palpi have the first and second joints densely scaled, the third bluntly conical, very short, and almost concealed. The primaries are rather elongate, pointed at the tip, the outer margin straight to near the apex; the cell is nearly two-thirds the length of the costa, and greatly produced; the discocellulars are strongly oblique, the upper one twice the length of the lower, the latter slightly shorter than the third median segment; the lower radial is depressed at the base; the first branch arises before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are oblique, and distinct, except at the middle. The body is very robust. The middle tibiæ are spined, the hind tibiæ with two pairs of spurs. The primaries of the male have a brand formed of three spots, placed as in the genus *Paraides*, there being an additional short streak beneath the second median segment in *X. pteras* and *X. chalestra*.

Xeniades is confined to Tropical America, two of the species extending into the southern part of our region.

a. Brand on the primaries of the male formed of three pieces.

1. ***Xeniades orchamus*.** (Tab. XCVI. fig. 31, ♂.)

Papilio orchamus, Cram. Pap. Exot. t. 155. ff. E, F¹.

Calpodes orchamus, Wats. P. Z. S. 1893, p. 105².

Alis fuscis, ad basin pilis ochraceis vestitis, stigmatibus griseis; anticis maculis quatuor, una in cellula, tribus in serie obliqua infra eam, ea in medio maxima, punctisque tribus in linea obliqua subapicalibus, flavo-hyalinis; posticis maculis duabus (interdum una) apicem versus coloris ejusdem: subtus ut supra, sed dilutioribus apicibus late rubescentibus, anticis macula submediana majore et albo notata; posticis fascia a medio marginis costalis fere ad angulum analem extendente, illic latiore, apicem versus maculis minutis quatuor ornatis, omnibus argenteis; anticis angulum analem versus et posticis (nisi ad apicem) ciliis albis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*).—SOUTH AMERICA to Brazil.

In Dr. Staudinger's collection there is a specimen of this species from Chiriqui, agreeing with others we possess from various localities in Tropical South America.

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It is very like *Aides epitus* (Cram.), from which, however, it differs in the shape of the silvery marking of the secondaries beneath, as well as in the form of the brand, &c. For the genitalia of the male, see Tab. XCVI. fig. 31.

b. Brand on the primaries of the male formed of four pieces.

2. **Xeniades pteras**, sp. n. (Tab. XCVI. figg. 32-35, ♂.)

Alis fuscis, ad basin (posticarum præsertim) et corpore supra virescentibus, stigmate grisescente; anticis maculis quatuor magnis, una in cellula, tribus infra eam in serie obliqua, punctisque tribus in linea transversa subapicalibus, omnibus flavo-hyalinis; posticis maculis duabus apicem versus coloris ejusdem: subtus rufo-castaneis, anticis area infra costam ad angulum analem extendente nigrescente; posticis fascia recta a costa fere ad angulum analem extensa, illic recurvata, ad angulum analem ipsum alba.

♀ mari similis.

Hab. PANAMA, Bugaba (*Champion*), Chiriqui (*ex Staudinger*).—COLOMBIA, Santa Marta; VENEZUELA, Puerto Cabello.

Of this insect we have seen five males and one female. It closely resembles the South-American *X. chalestra* (Hewitson) (= *Goniloba concors*, Herr.-Schäff.), but the secondaries are without the inner spot above, and it also has more of the metallic green colour on the upperside of the body and at the base of the wings. We figure a male from Bugaba; likewise the fore wing to show the position of the brand (Tab. XCVI. fig. 34), and the genitalia, for which see Tab. XCVI. fig. 35.

TELLES, gen. nov.

Papilio arcalaus, Cram., a peculiarly coloured Tropical-American insect, that just enters our limits, is taken as the type of this genus. We know of no other species that can be satisfactorily associated with it. *Telles* is perhaps nearest allied to *Thespieus*, but the primaries are without trace of a brand in the male, as well as being much less produced at the tip.

The antennæ are about half the length of the costa, and have a rather short club, terminating in a long crook. The third joint of the palpi is very short and almost concealed. The primaries are moderately elongate, blunt at the tip, arched on the costa towards the base, and slightly concave on the outer margin; the cell is less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one more than twice the length of the lower, the latter being a little shorter than the third median segment; the first branch arises before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are produced at the anal angle, extending slightly beyond the apex of the abdomen; the discocellulars are strongly oblique, the lower one well defined for half its length. The body is very robust. The middle tibiæ are spined, and the hind tibiæ have two pairs of long spurs. There are no secondary sexual characters visible on the wings.

1. *Telles arcalaus*. (Tab. XCVI. fig. 36, ♂.)*Papilio arcalaus*, Cram. Pap. Exot. t. 391. ff. I, K¹.

Alis fuscis, ad basin cum corpore supra nitente viridibus, anticis maculis duabus in cellula, tribus infra eas, secunda maxima et subtriangulari, duabus minutis apicem propioribus, punctisque tribus (interdum quatuor) in linea transversa subapicalibus, omnibus flavo-hyalinis; posticis maculis tribus (exteriore geminata) in serie obliqua apicem versus aliisque duabus subcostalibus coloris ejusdem: subtus rubescentioribus, anticis ad angulum analem pallidioribus, regione costali et apice castaneo et flavo notatis; posticis ad basin, area costali et ad marginem externum flavis castaneo marmoratis, maculis quatuor (nec tribus) in serie obliqua flavis, cellula grisescente ad finem ejus alba; corpore subtus sordide albo.

♀ mari similis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA¹; AMAZONS.

There is a specimen of this well-marked Tropical-American species in Dr. Staudinger's collection from Panama, and we therefore include it here. For the genitalia of the male, see Tab. XCVI. fig. 36.

THESPIEUS, gen. nov.

This genus includes numerous Tropical-American forms: *Hesperia dalmani*, Latr., which we take as the type, *H. lutetia*, *H. himella*, *H. ovinia*, and *H. opigena*, Hew., *Proteides othna* and *P. xarippe*, Butl., *P. cicus*, Mab., and others. It approaches *Niconiades*, but has the secondaries much less lobed at the anal angle, scarcely extending beyond the apex of the abdomen, the brand on the primaries of the male very differently placed, the genitalia in this sex dissimilarly formed. From *Phemiades* it may be separated by the stouter club to the antennæ and the more oblique brand on the primaries in the male. Three species only enter within our limits. All of them have hyaline spots on both wings, and the underside of the secondaries peculiarly coloured. *H. ovinia* and *H. opigena*, however, differ somewhat in this respect.

The antennæ are about half the length of the costa, with a stout club, terminating in a moderately long crook. The palpi are densely scaled, the third joint very short and almost concealed. The primaries are somewhat pointed at the tip, and usually with the outer margin more or less concave; the cell is nearly two-thirds the length of the costa, and considerably produced at the apex; the discocellulars are strongly oblique, the lower one extremely short, not half the length of the third median segment; the lower radial is greatly depressed at the base; the first branch arises a little before the middle of the median nervure, and the second near the lower angle of the cell. The secondaries are feebly lobed at the anal angle, reaching about as far as the apex of the abdomen; the discocellulars are faint. The body is robust, very hairy beneath. The middle tibiæ are spined and the hind tibiæ have two pairs of spurs, the hind tibiæ clothed with long hairs on their outer edge. The primaries of the male have a narrow, conspicuous, oblique, interrupted brand, extending from the base of the second median branch to about the middle of the submedian nervure.

1. *Thespieus dalmani*. (Tab. XCVI. figg. 37–40, ♂.)

Hesperia dalmani, Latr. Enc. Méth. ix. p. 747¹.

Alis fuscis, stigmatе grisescente, anticis maculis quatuor, una in cellula, tribus infra eam in serie obliqua, ea in medio maxima, tribus in linea transversa subapicalibus, omnibus flavo-hyalinis; posticis maculis duabus ultra cellulam coloris ejusdem, utrinque fulvo maculatis: subtus fusco et griseo marmoratis, anticis apicem versus et posticis area discali castaneo maculatis; anticis margine externo apud angulum analem et posticis (nisi apicem versus) ciliis fulvis.

♀ mari similis.

Hab. MEXICO, Rincon, Atoyac (*H. H. Smith*), Coatepec (*coll. Schaus*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*); PANAMA, Bugaba, Calobre, Veraguas (*Arcé*), Chiriqui (*Ribbe*).—SOUTH AMERICA to Brazil¹.

A common Tropical-American species, extending northwards into Mexico. This insect is very like *T. macareus*, from which it may be readily distinguished by the upperside of the body and the base of the wings being fulvous (instead of tinged with blue), and the hyaline spots yellowish (instead of clear white); beneath, too, the coloration is somewhat different, as will be seen by a reference to our Plate. We figure a male insect from Bugaba; also the fore wing, to show the position of the band (Tab. XCVI. fig. 39), and the genitalia, for which see Tab. XCVI. fig. 40.

2. *Thespieus macareus*. (Tab. XCVI. figg. 41–43, ♂.)

Goniloba macareus, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 72¹.

Alis fuscis, ad basin cum corpore supra pilis cærulescentibus vestitis, stigmatе pallide fusco; anticis maculis quatuor, una in cellula, tribus in serie obliqua infra eam, ea in medio maxima et subquadrata, punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis; posticis fascia transversa ultra cellulam venis divisa introrsum latiore coloris ejusdem: subtus fusco, castaneo et griseo marmoratis, maculis ut supra; posticis fascia discali angulum analem versus extendente, ciliis angulum analem juxta, albidis.

♀ mari similis, sed fascia transversa posticarum extrorsum latiore.

Hab. MEXICO, Atlixco (*F. D. G.*), Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus, H. Edwards*), Coatepec (*coll. Schaus*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*), Calobre (*Arcé*), Lion Hill (*M'Leannan*).—SOUTH AMERICA to Venezuela.

Of this species we possess a long series from within our limits, as well as others from Venezuela; only two of them are females. The males agree with Herrich-Schäffer's type, which has been lent us by Dr. Staudinger. The females have the blue on the upperside more strongly marked and the band of hyaline spots on the secondaries widening outwards, instead of inwards, as in the males. There is a considerable amount of variation also in the markings of the underside of the secondaries.

We figure a male insect from Irazu; also the genitalia, for which see Tab. XCVI. fig. 43.

3. *Thespieus ovinia*. (Tab. XCVII. figg. 1, 2, ♂.)

♂. *Hesperia ovinia*, Hew. Trans. Ent. Soc. (3) ii. p. 496¹.

Alis fuscis, stigmatе grisescente; anticis macula geminata in cellula, tribus in serie obliqua infra et ultra eam, una triangulari submediana, secunda majore et subquadrata inter ramos medianos primum et secundum, tertia ultra eam, punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis; posticis maculis tribus in linea transversa ultra cellulam, exteriorе bifida, coloris ejusdem: subtus ut supra, sed dilutioribus, anticis margine interno pallidiore et litura albida notatis, apicem versus et posticis omnino squamis griseis dense vestitis, his alis maculis variis in dimidio basali ornatis.

♀ mari similis.

Hab. NICARAGUA¹ (*Delattre, in Mus. Brit.*).

There are two males and one female of this distinct species in the British Museum; the males are contained in the Hewitson collection, the female was obtained by Delattre many years ago. *T. ovinia* is nearest allied to *T. opigena* (Hew.), from an unknown locality, the coloration of the underside of the secondaries differing considerably from that of *T. dalmani* and its allies. Unfortunately, no specimens are available for dissection. Our figure is taken from one of the types.

VACERRA, gen. nov.

The four Tropical-American species referred to this genus, of which we take *Hesperia litana*, Hew., as the type, are very nearly allied to *Thespieus*; but differ from it in the form and position of the brand on the primaries in the male, and also, to some slight extent, in the neuration of these wings, the lower radial nervure at its point of origin being more distant from the lower angle of the cell and the first median branch arising nearer the base. The brand, too, is covered by the larger scales, and not easily seen till these are removed. The genitalia of the males are formed very much as in *Thespieus*.

Antennæ and palpi as in *Thespieus*. The primaries somewhat pointed at the tip; the cell nearly two-thirds the length of the costa; the discocellulars oblique, the upper one twice (*V. egle*) or three times (*V. litana*) the length of the lower, the latter a little shorter than the third median segment; the first branch arising considerably before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars faint. The body is robust. The middle and hind tibiæ are spined, the latter with two pairs of spurs. The primaries of the male have an inconspicuous brand formed of two longitudinal streaks: one short, just below the proximal portion of the first median branch, and the second, very much longer, immediately above the submedian nervure towards the base.

In *V. canente* the upper piece of the brand is reduced to a small dot, and the secondaries have a long white stripe on the underside towards the outer margin; but the general structure, including that of the genitalia of the male, is exactly that of *V. litana*. Of *V. lachares* the female only is known, and its position is therefore not quite certain.

a. Secondaries with a transverse fascia of hyaline spots.

1. **Vacerra litana.** (Tab. XCVII. figg. 3-6, ♂; 7, 8, ♀.)

Hesperia litana, Hew. Trans. Ent. Soc. (3) ii. p. 494 (1866)¹; Exot. Butt., *Hesperia*, ff. 42, 43³.

Goniloba caprotina, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 71³.

Alis fuscis, ad basin cum corpore supra pilis sordide ochraceis vestitis, stigmatibus fuscis; anticis maculis quatuor vel quinque, una in cellula, tribus vel quatuor in linea obliqua infra eam, secunda maxima et subquadrata, punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis; posticis maculis tribus (interdum duabus) coloris ejusdem in serie transversa ultra cellulam, exteriori maxima: subtus castaneo et griseo marmoratis, maculis ut supra; anticis litura supra venam submedianam albida; ciliis (nisi ad venarum fines) albidis.

♀ mari similis.

Hab. MEXICO, Jalapa (*coll. Schaus*), Atoyac (*H. H. Smith*), Valladolid (*Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*ex Staudinger*).—SOUTH AMERICA to Venezuela^{1 2} and the Amazons.

This insect closely resembles *Thespis macareus*, but the hairs on the upperside of the body and at the base of the wings are obscure ochreous, and not bluish as in the latter species, and the males have a very differently shaped inconspicuous brand covered by the larger scales. The spots on the disc of the primaries are larger in some specimens than in others, and the outer one of the transverse series on the secondaries is always the largest; the females occasionally have the outer one only present on these wings.

Four males from different localities have been dissected. We figure a male from Chiriqui and a female from Costa Rica; also the fore wing of the male, to show the position of the brand (Tab. XCVII. fig. 5), and the genitalia, for which see Tab. XCVII. fig. 6.

2. **Vacerra egla.** (Tab. XCVII. figg. 9, 10, 11, ♂.)

Hesperia egla, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 82¹.

Alis fuscis, stigmatibus concolore, anticis maculis quinque, duabus in cellula elongatis, tribus in serie obliqua infra eam, ea in medio maxima, punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis; posticis maculis tribus in linea transversa ultra cellulam exteriori geminata coloris ejusdem: subtus fere ut supra, sed dilutioribus, anticis macula margini interno proxima multo majore; ciliis griseis.

♀ mari similis, sed anticis maculis in cellula confluentibus.

Hab. MEXICO, Atoyac (*H. H. Smith*); NICARAGUA, Chontales (*Belt, Janson*); PANAMA, Chiriqui (*Ribbe, mus. Staudinger*¹).

Six males and two females of this species are before us, two of which have been lent by Dr. Staudinger. The males are easily separated from those of *V. litana* by the primaries having the hyaline spot in the cell divided into two, and by the uniform width of the spots in the transverse band of the secondaries; the females can only be distinguished from the corresponding sex of that species by the position of the spots on the secondaries and the unspotted fringe. We figure a male from Chiriqui. For the genitalia, see Tab. XCVII. fig. 11.

3. *Vacerra lachares*, sp. n. (Tab. XCVII. figg. 12, 13, ♀.)

♀. Alis fuscis, anticis maculis quinque in linea obliqua, una longitudinali ad venam submedianam, secunda maxima inter ramos medianos primum et secundum, tertia ultra eam, quarta et quinta apicem propioribus, ea apicem proxima minutissima, macula geminata in cellula, punctisque tribus in linea obliqua subapicalibus, omnibus flavo-hyalinis; posticis maculis duabus in linea obliqua, exteriori majore et geminata, quoque flavo-hyalinis: subtus ut supra, sed pallidioribus et fusco marmoratis, anticis litura magna angulum analem versus flava, posticis puncto parvo in cellula et linea indistincta transversa albida angulum analem versus; palpis subtus griseis; ciliis anticis fuscis, posticis externe griseis.

Hab. COSTA RICA, Irazu (*Rogers*).

A single female only of this insect was sent us by Mr. Rogers*. It is very like the same sex of *V. litana*, from which it differs in having five spots in the oblique series on the primaries and those on the secondaries almost parallel with the outer margin; the secondaries, too, are more uniformly coloured beneath, and the fringe is not spotted.

b. Secondaries with a long white band towards the outer margin beneath, and with a yellowish spot above.

4. *Vacerra canente*. (Tab. XCVII. figg. 14, ♂; 15, 16, ♀.)

♀. *Carystus canente*, Butl. Trans. Ent. Soc. 1870, p. 501¹.

Alis fuscis, stigmatibus concolore, anticis maculis duabus parvis in cellula, quatuor in serie obliqua infra eas, secunda maxima, ultima minuta, punctisque tribus in linea transversa subapicalibus, flavo-hyalinis; posticis macula apicem versus punctoque in cellula coloris ejusdem: subtus ut supra, sed pallidioribus, posticis fascia recta margine costali prope apicem ad marginem externum angulum analem versus extendente alba.

♀ mari similis, sed anticis maculis in cellula confluentibus punctoque subtus in cellula posticarum absente.

Hab. COSTA RICA, Caché (*Rogers*).

The type of this species, a female, from an unknown locality¹, is in our collection, and we also possess a pair from Costa Rica, the female agreeing with it. The male, as in *V. egle*, differs from the female in having the hyaline spot in the cell of the primaries separated into two. *V. canente* is extremely like *V. litana* on the upperside, but has the secondaries very differently coloured beneath. We figure a female specimen, also the genitalia of the male, for which latter see Tab. XCVII. fig. 14.

TIRYNTHIA, gen. nov.

Goniloba conflua, H.-S., is one of the numerous isolated forms of Tropical-American Pamphilinæ that we are compelled to place by themselves. *G. conflua* agrees with *Oxyntes* (type, *Goniloba corusca*, H.-S.) in general coloration, but the primaries are without a brand, the secondaries are broadly but shortly lobed at the anal angle, the body is very robust in both sexes, the middle tibiæ are without spines, the genitalia are different in structure, &c. *Tirynthia* also approaches *Niconiades* and *Vacerra*. From

* We have an unnamed male insect from Colombia very like *V. lachares*, but it has the spots on both wings somewhat differently placed, and the primaries are without a brand.

Prenes it may be separated by the more elongate antennal club, the very different form of the genitalia of the male, &c. The secondaries have a long, broad, white band beneath, as in the species of several of the allied genera.

The antennæ are about half the length of the costa, and have a stout, elongate club, terminating in a long crook. The third joint of the palpi is short, stout, and bluntly conical. The primaries are elongate, blunt at the tip, arched on the costa towards the base, and slightly concave on the outer margin; the cell is much less than two-thirds the length of the costa; the discocellulars are strongly oblique, the lower one extremely short, arising from close to the point of origin of the third median branch; the lower radial is greatly depressed at the base; the first branch arises before the middle of the median nervure, the second some distance before the lower angle of the cell. The secondaries are shortly and broadly lobed at the anal angle, but do not extend beyond the apex of the abdomen in either sex; the discocellulars are oblique, the lower one distinct. The body is long and very robust. The middle tibiæ are without spines, and the hind tibiæ have two pairs of spurs. There are no secondary sexual characters visible on the wings.

1. **Tirynthia conflua.** (Tab. XCVII. figg. 17, 18, ♂; 19, 20, ♀.)

Goniloba conflua, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 72¹.

Alis fuscis, anticis macula magna inter ramos medianos primum et secundum, altera minore ultra eam, punctisque duobus in linea transversa subapicalibus, flavo-hyalinis, macula supra venam submedianam et posticis fascia obliqua ultra cellulam venis divisa ochraceis: subtus ut supra, sed pallidioribus, anticis costæ dimidio basali ochraceo, litura elongata supra venam submedianam flava; posticis fascia a margine costali apicem versus fere ad angulum analem extendente et margine interno ad angulum analem albidis.

♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA to Parana.

We have two females of this species from Chontales, agreeing with others from South America in our collection, and the type kindly lent us by Dr. Staudinger. It resembles *Niconiades xanthaphes* and its allies, but there is no band on the primaries in the male, nor is there any green colour on the upperside of the body and the base of the wings. There is a short transverse ochraceous band, divided by the nervures, beyond the cell on the upperside of the secondaries.

In the Hewitson collection in the British Museum there are specimens of this species mixed with the series of *Hesperia fusina*, but the one marked as the type of the latter we refer to *Prenes nero*. A female of *T. conflua* from Chontales is figured on our Plate. For the genitalia of the male, see Tab. XCVII. fig. 18.

NICONIADES.

Niconiades, Hübner, Exot. Schmett. ii. t. 147 (1816–1821); Watson, P. Z. S. 1893, p. 119.

Watson takes *N. xanthaphes*, Hübn., as the type of this genus, and also includes in it

Hesperia cydia, Hew.; in addition to these, we place here *Proteides cæso*, *P. merenda*, and *P. viridiceps*, Mab. All are Tropical-American forms, four of them occurring within our limits. In the typical species the hind wings are strongly lobate, approaching *Eudamus* in this respect; but in *N. cydia* and *N. merenda* this is less marked. The males in this genus have a brand on the primaries formed of three short longitudinal streaks placed one below the other.

The antennæ are rather long, about reaching the end of the cell, with an elongate club, terminating in a long slender crook. The palpi have their second joint densely scaled, the third short and bluntly conical. The primaries are pointed at the tip; the cell is considerably less than two-thirds the length of the costa; the discocellulars are oblique, the upper one a little more than twice the length of the lower; the lower radial is strongly depressed at the base; the first branch arises some distance before the middle of the median nervure, the second considerably before the lower angle of the cell. The secondaries are more or less lobed at the anal angle (strongly so in *N. xanthaphes*), extending considerably beyond the apex of the abdomen; the discocellulars are faint. The body is robust. The middle and hind tibiæ are spined; the latter have two pairs of spurs. The primaries in the male have a brand formed of three portions: (1) a triangular piece filling the angle between the base of the second median segment and the first median branch; (2) a longitudinal streak immediately below this; (3) a shorter longitudinal streak along the upper edge of the submedian nervure.

a. Secondaries with a long white band beneath.

1. **Niconiades xanthaphes.** (Tab. XCVII. figg. 21, 22, ♂.)

Niconiades xanthaphes, Hübn. Samml. exot. Schmett. t. 147 (♂ ♀)¹; Wats. P. Z. S. 1893, p. 120².

Alis fuscis, ad basin, cum capite et corpore supra, nitente viridibus, stigmatè grisescente; anticis maculis quatuor, una bifida in cellula, tribus in linea obliqua infra et ultra cellulam, punctisque duobus aut tribus in linea transversa, albo-hyalinis; posticis macula geminata ultra cellulam coloris ejusdem: subtus dilutioribus, anticis costæ dimidio basali ochraceo, litura supra venam submedianam alba; posticis fascia angusta irregulari a margine costali angulum analem versus transeunte; palpis et corpore subtus sordide griseis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*); HONDURAS, San Pedro (*Whitely*); PANAMA, Bugaba, Tolé (*Champion*).—SOUTH AMERICA to Brazil.

Of this widely distributed Tropical-American insect we have five examples from our region. It is one of a small group of species recognizable by the long white band on the underside of the secondaries. We figure the fore wing of a male, to show the position of the brand (Tab. XCVII. fig. 21), also the genitalia, for which see Tab. XCVII. fig. 22.

2. **Niconiades cæso.** (Tab. XCVII. figg. 23, 24, 25, ♂.)

Proteides cæso, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxviii¹.

N. xanthaphi similis, sed posticis maculis tribus hyalinis, nec duabus.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*).—SOUTH AMERICA to Brazil¹, Trinidad.

We have a single rather worn female example from Atoyac that we assign to *N. cæso*, which is a very near ally of *N. xanthaphes*, Hübn., the range of each being similar, and the only difference that we can detect being that *N. cæso* has an extra hyaline spot on the secondaries. Our figures are taken from South-American specimens. For the genitalia of the male, see Tab. XCVII. fig. 25.

b. Secondaries without a white band beneath.

3. **Niconiades merenda.** (Tab. XCVII. figg. 26, 27, ♂.)

Proteides merenda, Mab. Petites Nouv. Ent. ii. p. 202 (1878)¹.

Alis fuscis, stigmatе grisescente, anticis maculis tribus in linea obliqua, una submediana parva, secunda inter ramos medianos primum et secundum subquadrata et maxima, tertia ultra eam, duabus in cellula, punctisque duobus minutis subapicalibus in linea transversa, omnibus hyalinis; posticis maculis duabus parvis marginem externum versus (una fere obsoleta) hyalinis: subtus ut supra, sed anticis costa et apice late, posticisque omnino, ochraceo tinctis, anticis litura submediana angulum analem versus albida, posticis puncto minuto ochraceo in cellula; capite et thorace viridibus; palpis griseis, pilis virescentibus.

♀ mari similis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).—VENEZUELA; BRAZIL¹.

We have seen four specimens of this species, including the type, a pair of these being from Chiriqui. It is a close ally of *N. viridiceps*, as we have noted under that species.

4. **Niconiades viridiceps.** (Tab. XCVII. figg. 28, 29, ♀.)

Proteides viridiceps, Mab. Le Nat. 1889, p. 99, f. 4¹.

♀. Alis fuscis, anticis maculis tribus in linea obliqua, una triangulari supra venam submedianam, secunda maxima subquadrata inter ramos medianos primum et secundum, tertia ultra eam, duabus in cellula (superiore majore), punctisque tribus in linea transversa subapicalibus, eo margini costali proximo minutissimo, omnibus hyalinis; posticis maculis tribus in linea transversa ultra cellulam, ea ad apicem proxima maxima, hyalinis: subtus ut supra, sed anticis (area mediana excepta) ochraceo tinctis, macula submediana anticarum elongata, posticis puncto in cellula, altero marginem costalem propiore, et tertia angulum analem versus, albidis; capite et thorace supra viridibus; palpis subtus pilis albis vestitis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).

Through the kindness of Dr. Staudinger we have been able to examine the type of this species, which, according to Mabille¹, is a male; but, although the body is now missing, we have no doubt it is a female, the primaries being without any trace of a band.

N. viridiceps is very like *N. merenda* (Mab.); the spots, however, on the secondaries form a transverse band, which is not the case in the latter species. The type is figured.

OXYNTHESES, gen. nov.

The single Tropical-American species referred to this genus, *Goniloba corusca*, H.-S. (= *Proteides martius*, Mab.), we had at first placed under *Niconiades*, from which it differs in the following points:—The lower radial nervure of the primaries arises from close to the lower angle of the cell, the third median segment thus being very short (in *Niconiades* the lower discocellular is nearly as long as the third median segment); the secondaries are, at most, very feebly lobate in the male, not extending beyond the apex of the abdomen, in the female almost rounded at the anal angle; the lower portion of the brand on the primaries in the male is transverse (instead of running along the upper edge of the submedian nervure, as in *Niconiades*); the genitalia of the male are dissimilarly formed.

The antennæ and palpi are formed as in *Niconiades*. The primaries are almost pointed at the tip; the cell is nearly two-thirds the length of the costa; the discocellulars are strongly oblique, the lower one extremely short; the lower radial is greatly depressed at the base, and arises from close to the lower angle of the cell; the first branch arises considerably before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are very feebly lobed at the anal angle, not extending beyond the abdomen in either sex. The middle and hind tibiæ are spined; the latter have two pairs of spurs. The body is robust. The primaries of the male have a brand formed of three portions: (1) a triangular piece filling the angle between the base of the second median segment and the first median branch; (2) a short longitudinal streak just below this; (3) a short transverse piece extending from the submedian nervure towards the one above it.

O. coruscus, like some of the species of *Niconiades*, has a transverse white band on the secondaries beneath.

1. *Oxyntes coruscus*. (Tab. XCVII. figg. 30–33, ♂.)

Goniloba corusca, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 72¹.

Proteides martius, Mab. Le Nat. 1889, p. 127, f. 2 (♂)².

Alis fuscis, ad basin cum capite et corpore supra virescentibus, stigmatibus griseis, costæ dimidio basali squamis flavis notato, macula duplici in cellula, tribus infra eam, una parva in venam submedianam, secunda inter ramos medianos primum et secundum maxima, extrorsum excavata, tertia ultra eam, punctisque tribus in linea transversa, omnibus albo-hyalinis: subtus multo pallidioribus, anticis costæ dimidio basali ochraceo, linea curvata supra venam submedianam albida; posticis fascia recta a costæ medio angulum analem versus extensa alba, linea brevi coloris ejusdem ab angulo ipso venam sequente; abdomine subtus ochraceo.

♀ mari similis.

Hab. MEXICO, Dos Arroyos in Guerrero (*H. H. Smith*); PANAMA, Chiriqui (*mus. Staudinger*²).—SOUTH AMERICA to Brazil.

Of this species we possess only a worn female from Central America, but we have seen a second in Dr. Staudinger's collection. It is very like *Niconiades xanthaphes*,

Hübner, but has a straight white band on the secondaries beneath, and these wings are without the hyaline spots. The secondaries of both sexes are less prolonged at the anal angle. Dr. Staudinger has lent us a male of the present species labelled *G. corusca*, H.-S.; this, like our Mexican insect, has the white band on the underside of the secondaries very broad. *Niconiades cydia* (Hew.), from Brazil, is also very similarly coloured, but differs in being larger, the hind wings are more produced at the anal angle, and the lower portion of the band on the primaries is in a line with the submedian nervure (instead of extending forwards from it, as in the present species), in this respect agreeing with *N. xanthaphes*. A South-American specimen is figured; also the fore wing of the male to show the position of the band (Tab. XCVII. fig. 32). For the genitalia of the male, see Tab. XCVII. fig. 33.

PHEMIADES.

Phemiades, Hübner, Verz. bek. Schmett. p. 112 (1816); Watson, P. Z. S. 1893, p. 103.

Watson, following Scudder, takes *Papilio phineus*, Cram., as the type of this genus, and *Hesperia propertius*, Fabr., must likewise belong here. He states that there are no secondary sexual characters on the wings, but in *H. propertius* there is a distinct, oblique, interrupted band. This last-mentioned insect just enters our limits, and the following characters are taken from it:—

The antennæ are about half the length of the costa, and have a moderately stout club, terminating in a rather long crook. The third joint of the palpi is short, stout, and bluntly conical. The primaries are pointed at the tip; the costa is nearly straight at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are very oblique, the upper one about three times the length of the lower, the latter less than half the length of the third median segment; the lower radial is strongly depressed at the base; the first branch arises a little before the middle of the median nervure, the second a long way from the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are oblique, the upper one faint. The body is very robust. The legs are stout; the middle tibiæ are furnished with long spines, and the hind tibiæ have two pairs of spurs. The primaries of the male have an oblique interrupted band extending from a little before the apex of the second median segment to the middle of the submedian nervure.

1. *Phemiades propertius*. (Tab. XCVII. fig. 34, ♂.)

Hesperia propertius, Fabr. Ent. Syst. iii. 1, p. 325¹; Hew. Exot. Butt., *Hesperia*, ff. 33, 34².

Papilio propertius, Donovan. Ins. India, t. 47. f. 2³.

Carystus propertius, Butl. Cat. Fabr. Diurn. Lep. p. 273⁴.

Hesperia memuca, Hew. Trans. Ent. Soc. (3) ii. p. 497⁵.

Alis fuscis, anticis stigmatе grisescente, costa squamis aureis notata, maculis tribus discalibus in linea obliqua infra cellulam punctisque duobus in linea transversa subapicalibus flavidis, dimidio basali marginis interni

litura flava notato; posticis fascia maculosa transversa ultra cellulam coloris ejusdem: subtus anticis area interna fusca, maculis discalibus paginae superioris majoribus et fasciis duabus subapicalibus flavis, costa et apicem versus castaneis; posticis castaneis, fascia subcostali, secunda mediana et margine ipso ad angulum analem anguste flavis; tibiis rufis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).—SOUTH AMERICA to Brazil⁴.

Of this conspicuous species we have seen a specimen from Chiriqui in Dr. Staudinger's collection. Unfortunately this insect is not now before us, hence we have taken our description from Guiana examples rather than exclude *P. propertius* from our list. It is perhaps not really different from *Papilio phineus*, Cram. For the genitalia of the male, see Tab. XCVII. fig. 34.

THOON, gen. nov.

The two Central-American species referred to this genus, of which we take *Proteides modius*, Mab. (= *P. stilio*, Mab.), as the type, are very like *Cobalus*; but the males have a double brand on the primaries—a triangular piece and a short longitudinal streak below it—and very peculiar genitalia. These characters also separate *Thoon* from other allied genera.

The antennæ are a little more than half the length of the costa, and have a rather slender club, terminating in a long crook. The third joint of the palpi is short, but distinctly visible, and bluntly conical. The primaries are considerably produced at the apex, somewhat pointed in the male and blunt in the female, the costa arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about three times the length of the lower, the latter being shorter than the third median segment; the lower radial is strongly depressed at the base; the first branch arises before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are produced at the anal angle, extending beyond the apex of the abdomen; the discocellulars are faint and transverse. The body is robust. The middle tibiæ are furnished with long spines, and the hind tibiæ have two pairs of spurs. The primaries of the male have the two portions of the brand placed thus: (1) a subtriangular piece (slightly excised externally in the type) in the angle between the base of the second median segment and that of the first median branch; (2) a short longitudinal streak just below it.

1. *Thoon modius*. (Tab. XCVII. figg. 35–38, ♂.)

Proteides modius, Mab. Le Nat. 1889, p. 99, f. 2¹.

Proteides stilio, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxvii (1891)².

Alis nigro-fuscis, stigmatibus fere concolore, anticis maculis duabus parvis in cellula (interdum obsoletis), tribus in linea obliqua (una ad venam submedianam ochracea), duabus inter ramos medianos, infima magna et subquadrata, una (interdum duabus) parva, subapicali, flavo-hyalinis; posticis maculis tribus in serie transversa ultra cellulam ochraceis: subtus fere ut supra, sed pallidioribus, anticis macula submediana

albida, area mediana obscuriore; posticis puncto ad cellulæ finem et aliis quatuor in serie transversa ochraceis; capite et thorace supra viridibus; palpis subtus griseis, abdomine albido.
 ♀ mari similis, sed subtus pallidior et posticis maculis albidis (nec ochraceis).

Hab. GUATEMALA, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui² (*Ribbe, mus. Staudinger*¹).

We have seen eight males and two females of this insect from within our limits.

Dr. Staudinger has lent us Mabilles's type of *P. stilio* and also that of *P. modius*, both males, from Chiriqui; he has likewise sent us examples of the same species under the name of *Carystus cocalus*, but we do not find that this last appellation has been published. We figure the type of *P. modius*, Mab., from Chiriqui; also the fore wing of the male, to show the position of the brand (Tab. XCVII. fig. 37), and the genitalia of the male, for which see Tab. XCVII. fig. 38.

2. *Thoon taxes*, sp. n. (Tab. XCVII. figg. 39, 40, ♂.)

Alis fuscis, anticis stigmatate nigrescente, maculis duabus in linea obliqua infra cellulam, una elongata inter ramos medianos primum et secundum, altera minore et subquadrata ultra eam, hyalinis, macula submedia valde indistincta flavida: subtus ut supra, sed dilutioribus, posticis punctis indistinctis quatuor ultra cellulam in linea curvata ochraceis.

♀ ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

Dr. Staudinger has lent us a worn male specimen of this insect, which may be distinguished from many other similarly-coloured species by the form of the brand on the primaries, this being black and conspicuous.

T. taxes is not unlike *Æonus pyste*, but the brands are very dissimilar in shape. It differs from *T. modius* in having much smaller hyaline spots on the primaries, and the secondaries immaculate above.

RHINTHON, gen. nov.

The six Tropical-American species referred to this genus, all occurring within our limits, differ from the other Pamphilinæ known to us in the position of the brand on the primaries in the male, this, in the form of a single longitudinal streak, being placed along the upper edge of the submedian nervure, at or before the middle. *Proteides chiriquensis*, Mab., is taken as the type, and the other species are *Thracides melius*, Hübn., *Hesperia cynea*, Hew. (= *Carystus erebina*, Möschl.), and three new ones described below. *R. chiriquensis* differs from the others in having large hyaline spots on the primaries. The males of all of them have, in addition to the brand, a more or less distinct fringe of long hairs on the fore wings below the submedian nervure towards the base, and also some long hairs along the upper edge of the abdominal fold of the secondaries. The genitalia of *R. cynea*, *R. alus*, and *R. melius* are extremely similar, those of the other species differing *inter se*.

The antennæ are about half the length of the costa, longer in *R. megalops*, and have a moderately stout club, terminating in a long crook. The palpi are densely clothed with scales; the third joint very short, stout, and bluntly conical. The primaries are rather pointed at the tip, with the outer margin straight towards the anal angle; the cell is considerably less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one fully twice the length of the lower, the latter a little shorter than the third median segment; the lower radial is strongly depressed at the base; the first branch arises considerably before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are faint. The body is robust. The middle tibiæ are furnished with long, the hind tibiæ with shorter spines; the latter have two pairs of spurs. The primaries of the male have an inconspicuous longitudinal brand placed along the upper edge of the submedian nervure, at or before the middle.

a. Primaries with large hyaline spots.

1. **Rhinton chiriquensis.** (Tab. XCVII. figg. 41-44, ♂.)

Proteides chiriquensis, Mab. Le Nat. 1889, p. 127, f. 1 (♂)¹.

Alis nigro-fuscis, stigmatibus elongato griseo, anticis ad basin brunnescentioribus, maculis duabus inter ramos medianos, proxima magna subquadrata, altera apici propiore, una in cellula geminata, punctisque tribus in linea curvata transversa, albo-hyalinis, infra venam submedianam pilis longis penicillatis; posticis (nisi regione costali) pilis ochraceo-fuscis vestitis, punctis duobus ultra cellulam albis: subtus ut supra, anticis angulum analem versus pallidioribus, in costa et apice late, posticisque omnino, squamis dispersis griseis sparsim vestitis; posticis puncto in cellula, et aliis tribus in linea transversa ultra eum, albis; capite supra viridi tincto; palpis subtus pilis albidis.

♀ mari similis, sed anticis maculis in cellula confluentibus.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Panima in Vera Paz (*Champion*); PANAMA, Chiriqui (*mus. Staudinger*¹), Calobre (*Arcé*).

We have seen five males and two females of this species, including the type. Mabilie referred *R. chiriquensis* to the genus *Proteides*, from which, as we understand it, it differs in having a conspicuous brand on the primaries in the male, as well as in the neuration of these wings. Dr. Staudinger has also sent us a female specimen of the present species under the name of *Pamphila cubana*, H.-S., but this determination seems to us to be very doubtful. We figure the type from Chiriqui; also the fore wing of the male, to show the position of the brand (Tab. XCVII. fig. 43), and the genitalia, for which see Tab. XCVII. fig. 44.

b. Primaries with small hyaline spots.

2. **Rhinton cynea.** (Tab. XCVIII. figg. 1, 2, 3, ♂.)

Hesperia cynea, Hew. Ann. & Mag. Nat. Hist. (4) xviii. p. 456 (1876)¹.

Carystus erebina, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 211².

Carystus kasus, Möschl. loc. cit. p. 213 (♂) ³.

? *Carystus tersa*, Möschl. loc. cit. p. 213 (♀) ⁴.

Alis nigro-fuscis, stigmatē concolore, anticis maculis duabus ad cellulæ finem, una inter ramos medianos primum et secundum, altera transversa minore ultra eam, punctisque minutis in linea transversa subapicalibus (interdum obsoletis), albo-hyalinis, pilis longis infra venam submedianam penicillatis: subtus ut supra, sed pallidioribus, anticis linea subcostali grisea, puncto minuto ad cellulæ finem albo, maculis ut supra, area ad angulum analem late albida; posticis punctis tribus minutis ultra cellulæ finem albidis; palpis subtus albidis; capite et thorace supra pilis viridibus instructis.

♀ nobis ignota.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*), Taboga I. (*G. Mathew*).—COLOMBIA ^{2 3 4}; VENEZUELA ¹.

Dr. Staudinger has lent us the types of *Carystus erebina* and *C. kasus*, Möschler, from Colombia, and these do not differ from that of *Hesperia cynea*, Hew., from Venezuela. We possess several specimens of the same species from Central America, all of which are males. *C. kasus* represents a small form, and we have others like it from Taboga Island and Colombia. *C. tersa*, Möschler, based upon a single female example from Colombia, probably belongs here. A male of *R. cynea* from Atoyac is figured. For the genitalia, see Tab. XCVIII. fig. 3.

3. *Rhinthon alus*, sp. n. (Tab. XCVIII. figg. 4, 5, 6, ♂.)

R. cyneæ similis, sed anticis maculis discalibus angustioribus; capite et thorace fuscis (nec viridibus): subtus anticis ad angulum analem pallide fuscis; palpis obscurioribus.

♀ ignota.

Hab. PANAMA (*Ribbe, in mus. Staudinger*).—GUIANA; AMAZONS; BOLIVIA.

Dr. Staudinger has lent us two male specimens of this species from Panama under the MS. name of *Carystus alus*, Mabilie, and we have several others from South America agreeing with it. *R. alus* is exceedingly like *R. cynea*, Hew., and the male has a similar brand on the primaries, but the head and thorax are clothed with fuscous (instead of green) hairs above, and the hyaline spots are narrower. The genitalia of the two species are very similar: for those of *R. alus*, see Tab. XCVIII. fig. 6.

c. Primaries immaculate above.

4. *Rhinthon melius*. (Tab. XCVIII. figg. 7, ♂; 8, ♀.)

Thracides melius, Geyer, in Hübner's Zutr. ex. Schmett. iv. p. 35, ff. 755, 756 (♂) ¹.

Pamphila irma, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 216 (♂) ².

Alis nigro-fuscis, stigmatē elongato submediano pallidiore, anticis infra venam medianam et submedianam, et in plica abdominale posticarum, pilis longis penicillatis: subtus obscurioribus et purpureo tinctis, anticis ad angulum analem multo pallidioribus, apice et margine externo grisescentibus; posticis margine externo et interno coloris ejusdem; palpis et corpore subtus griseis.

♀ mari similis, anticis punctis tribus indistinctis in linea transversa subapicalibus griseis: subtus marginibus externis et internis multo grisescentioribus.

Hab. MEXICO, Tierra Colorada in Guerrero (*H. H. Smith*), Atoyac (*H. H. Smith & Schumann*), Valladolid in Yucatan (*Gaumer*); PANAMA, Taboga I. (*G. Mathew*).—SOUTH AMERICA¹, Colombia² to Brazil; TRINIDAD.

Out of fifteen specimens of this insect now before us, five only are from Central America; these agree very well with Geyer's figure. Dr. Staudinger has lent us the type of *Pamphila irma*, Möschler, from Colombia, and it clearly belongs to this species. In its uniform brown upperside *R. melius* resembles *Papias infuscatus* (Plötz), but is readily separable from it by the peculiar markings of the under surface and the presence of a brand on the primaries in the male. The females, of which we possess two from Atoyac, are far more brightly coloured beneath, the broad grey margins on the secondaries leaving a dark patch extending from the costa across the discal area. We figure a female specimen from Atoyac; also the genitalia of the male, for which see Tab. XCVIII. fig. 7.

5. **Rhinton epaphus**, sp. n. (Tab. XCVIII. figg. 9, 10, ♂.)

Alis fuscis, stigmatе concolore: subtus pallidioribus, posticis marginem externum versus late et ad angulum analem sordide ochraceis, punctis duobus ultra cellulam (interdum obsoletis) coloris ejusdem; ciliis ad angulum analem posticarum ochraceis; palpis griseo-fuscis.

♀ mari similis, sed posticis subtus ad angulum analem late pallide ochraceis, punctis duobus magis distinctis.

Hab. GUATEMALA, Chisoy Valley (*F. D. G. & O. S.*), Panama in Vera Paz (*Champion*).—BRITISH GUIANA.

Of this species we have seen three specimens only, two males from the Atlantic slope of Guatemala, and a female from Quonga, British Guiana, the latter sent to us by Whitely. One of the males was labelled long ago by Salvin with the specific name "*epaphus*, Mab.," but we have failed to find a published description of the insect. The shape of the brand will easily separate *R. epaphus* from most of the allied forms. It is much larger than either *R. melius* or *R. megalops*, and differs from both in having the outer margin of the secondaries broadly suffused with ochreous beneath. For the genitalia of the male, see Tab. XCVIII. fig. 10.

6. **Rhinton megalops**, sp. n. (Tab. XCVIII. figg. 11, 12, 13, ♂.)

Alis velutino-atro-fuscis, stigmatе concolore: subtus ut in pagina superiore, sed rubescentibus, anticis angulum analem versus pallidiorе; capite, palpis et thorace supra viridi tinctis.

♀ ignota.

Hab. MEXICO, Teapa (*H. H. Smith*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).

This is a strikingly dark insect, differing from *R. melius* in having the underside of the wings much more uniformly coloured. Four specimens only have been seen, two of them belonging to Dr. Staudinger. The Teapa example is much smaller than the others, and has the brand reduced to a very short longitudinal streak. From the

numerous similarly-coloured forms, the large head and eyes, the green hairs on the head and on the front of the thorax, and the form of the brand will serve to distinguish it. One of the Chiriqui specimens has on the underside of the secondaries a faint spot in the cell, and three others beyond it, formed by scattered ochreous scales. For the genitalia of the male, see Tab. XCVIII. fig. 13.

COBALUS.

Cobalus, Hübner, Verz. bek. Schmett. p. 115 (1816) (part.); Watson, P. Z. S. 1893, p. 120.

Under this genus we provisionally include various Tropical-American forms—*Hesperia fidicula*, Hew., *Carystus argus*, Möschl., *Pamphila warra*, Möschl., &c. Watson takes as the type *Papilio virbius*, Cram., an insect not entering our limits; the other species he places in it, *Hesperia physcella*, Hew., belongs to our genus *Eutyche*. *Cobalus cannae*, H.-S. (= *Pamphila osembo*, Möschl.), a common Tropical-American species, has the secondaries more produced at the anal angle, and the genitalia of the males very peculiarly formed, but for the present it can remain here. *C. virbius* and *C. fidicula* have a white patch on the secondaries above and beneath, a system of coloration common to some of the species of *Carystus*.

The chief characters of *Cobalus* are the moderately long antennæ, with long crook, the short terminal joint of the palpi, the very robust body, and the somewhat pointed primaries in the male, which are without trace of a brand. All the species we refer to it are of rather large size.

The antennæ are about half the length of the costa, and have a moderately elongate club, terminating in a long crook. The third joint of the palpi is very short and bluntly conical. The primaries are somewhat produced, and have the apex more or less pointed, the costa being very slightly arched towards the base; the cell is less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one two or three times the length of the lower, the latter a little shorter than the third median segment; the lower radial is strongly depressed at the base; the first branch arises before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are more or less produced at the anal angle; the discocellulars are oblique, the upper one faint. The body is robust. The middle tibiæ are usually spined (except in *C. virbius* and some others); the hind tibiæ have two pairs of spurs. The primaries of the male are without trace of a brand, but in *C. cannae* there is a pencil of hairs beneath the base of the first median branch in this sex.

The genitalia of the male of *C. fidicula* are very like those of *C. virbius*, but those of the other species dissected are all more or less differently formed. *C. argus* has a very long crook to the antennæ, and it would be almost as well placed in the genus *Carystus*.

a. Primaries with hyaline spots.

a'. Secondaries with a large white patch near the outer margin.

1. **Cobalus fidicula.** (Tab. XCVIII. figg. 14, 15, 16, ♂.)

Hesperia fidicula, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 81¹.

Alis fuscis, anticis maculis duabus, una inter ramos medianos primum et secundum lunulata, altera ultra eam minore et punctis duobus (interdum uno) subapicalibus, omnibus albo-hyalinis; posticis plaga magna ovali marginem externum versus alba: subtus ut supra, sed rubescentioribus, anticis marginem internum versus pallidioribus et macula albida notata.

♀ nobis ignota.

Hab. HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA (*mus. Staudinger*¹); PANAMA, Chiriqui (*ex Staudinger*).

We have two males of this species, which is very closely allied to *C. virbius* (Cram.), but differs from it in having the primaries a little more elongate, and the white patch on the secondaries not reaching the outer margin. We had at first referred this insect to *Carystus*, but it seems better placed here. The genitalia of the male are very like those of *C. virbius*, see Tab. XCVIII. fig. 16.

b'. Secondaries immaculate above.

a''. Primaries with one or two hyaline spots in the cell.

2. **Cobalus gabina**, sp. n. (Tab. XCVIII. figg. 17, 18, ♂.)

Alis fuscis, anticis maculis tribus in linea obliqua infra et ultra cellulam, ea in medio inter ramos medianos primum et secundum maxima, aliis parvis, alia geminata in cellula, punctisque tribus in linea obliqua subapicalibus, omnibus albo-hyalinis; posticis regione costali obscurioribus: subtus ut supra, sed pallidioribus, anticis area mediana obscuriore, macula ad venam submedianam multo majore; palpis subtus flavo-griseis.

♀ ignota.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

A single male example is all we know of this species. It somewhat resembles *C. argus* on the upperside, except that the hyaline spots in the cell of the primaries are confluent, and that there are some minute additional subapical dots on these wings; the secondaries, however, are immaculate beneath.

3. **Cobalus argus.** (Tab. XCVIII. figg. 19, 20, 21, ♂.)

Carystus argus, Möschl. Verh. zool.-bot. Ges. Wien, xxviii. p. 212 (1878)¹.

Alis fuscis, anticis maculis quinque, duabus in cellula, superiore minuta, tribus in serie obliqua infra eas, ea in medio maxima, omnibus albo-hyalinis: subtus griseis, anticis area mediana fusca, plaga supra venam submedianam albida, punctis tribus subapicalibus nigrescentibus; posticis maculis quinque, una magna in cellula aliisque quatuor in serie irregulari (una interdum duabus ocellatis), nigris.

♀ nobis ignota.

Hab. PANAMA, Taboga I. (*G. Mathew*).—COLOMBIA¹; ARGENTINE REPUBLIC.

We have seen the type of this distinct species, and we also have a specimen from Taboga agreeing with it. Dr. Staudinger, too, has sent us a male of *C. argus* labelled as coming from the Argentine Republic. For the genitalia of the male, see Tab. XCVIII. fig. 21.

b''. Primaries without a hyaline spot in the cell.

4. **Cobalus percosius**, sp. n. (Tab. XCVIII. figg. 22, 23, 24, ♂.)

Alis fuscis, anticis maculis duabus ad cellulæ finem, una inter ramos medianos primum et secundum sagittiforme, altera exteriore minore, punctisque tribus in linea transversa subapicalibus (interdum obsoletis), posticis interdum punctis duobus ultra cellulam, albo-hyalinis: subtus ut supra, anticis litura magna ad angulum analem flavo-grisea; posticis puncto ad cellulæ finem (interdum obsoleto) et duobus margini externo propiore flavis; palpis subtus et ciliis griseis.

♀ mari similis, sed supra macula quoque submediana albida.

Hab. MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Zapote (*Champion*); PANAMA, Chiriqui (*mus. Staudinger*).

Mr. H. H. Smith has sent us two males and two females of this species from Eastern Mexico, Mr. Champion captured a male in Guatemala, and we have also seen a male and a female of it from Chiriqui in Dr. Staudinger's collection. It is not unlike *Rhinthon cynea*, but is without a brand, and has a sagittate spot between the first and second median branches, instead of a transverse one, on the primaries. The female, as is often the case, and sometimes the male also, has an additional spot near the submedian nervure. The minute subapical spots on the primaries are not always visible on the upperside. A specimen from Atoyac is figured. For the genitalia of the male, see Tab. XCVIII. fig. 24.

5. **Cobalus cannæ**. (Tab. XCVIII. figg. 25, 26, 27, ♂.)

Cobalus cannæ, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 83 (1869) ¹.

Pamphila osembo, Möschl. Verh. zool.-bot. Ges. Wien, 1883, p. 326 ².

Alis brunneo-fuscis, anticis maculis duabus transversis in linea obliqua, una inter ramos medianos primum et secundum, altera ultra eam, punctisque tribus in linea transversa subapicalibus, interdum valde indistinctis, omnibus albo-hyalinis: subtus fere ut supra, marginem internum et externum versus pallidioribus; posticis rubescentioribus, fasciis duabus macularibus curvatis transeuntibus obscurioribus; ciliis fulvis.

♀ mari similis, sed maculis majoribus.

Hab. MEXICO, Rincon in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*), Coatepec (*coll. Schaus*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Panima in Vera Paz (*Champion*).—SOUTH AMERICA to the Argentine Republic.

Dr. Staudinger has lent us the types of *Cobalus cannæ*, H.-S., and *Pamphila osembo*, Möschl., the latter being from Surinam ², and we are unable to detect any difference between them. He has also lent us a specimen of the same species under the MS. name of *Pamphila byzas*, Mab., from Venezuela. The absence of the brand on the primaries of the male separates *C. cannæ* at once from *Rhinthon alus*, which it closely resembles on the upperside.

Our series of upwards of thirty examples show some variation in the size of the

hyaline spots on the primaries, these being almost obliterated in several specimens. The females have larger spots, and are usually more brightly coloured. We have dissected the genitalia of a male from Atoyac, Mexico, and of another from Manaure, Colombia, and these no show no difference (see Tab. XCVIII. fig. 27). The primaries have in this sex a pencil of long hairs below the origin of the first median branch, and also some long hairs below the middle of the submedian nervure.

b. Primaries and secondaries immaculate above.

6. **Cobalus warra.** (Tab. XCVIII. fig. 28, ♂.)

Pamphila warra, Möschl. Verh. zool.-bot. Ges. Wien, 1882, p. 327¹.

Hesperia warra, Plötz, Stett. ent. Zeit. 1883, p. 27².

Alis obscure fuscis, unicoloribus: subtus anticis pallidioribus, costa fasciaeque indistincta ultra cellulam recurvata sordide albidis; posticis dimidio basali albescente, dimidio distali fusco; corpore subtus albido. ♀ nobis ignota.

Hab. COSTA RICA, Irazu (*Rogers*).—GUIANA, Surinam^{1 2}.

Mr. Rogers obtained a single male in Costa Rica which we refer to this species, but Salvin, who compared it with Möschler's type from Surinam, found that the white at the base of the secondaries beneath was rather more extensive.

COBALOPSIS, gen. nov.

The two Tropical-American species (*Carystus dyscritus*, Mab., and *Pamphila edda*, Mab.) we place under this genus agree with *Cobalus* in the neuration of the wings, as well as in their other general characters; but they have the male genitalia so remarkably formed that we think it best to separate them. We take *P. edda* as the type. The harpes in the males of both species are greatly elongated, so that they project considerably beyond the apex of the abdomen, and can be seen without dissection. As in *Cobalus*, there is no trace of a brand on the primaries in this sex. *Hesperia pelora*, Plötz, from Brazil, must also belong to *Cobalopsis*.

1. **Cobalopsis edda.** (Tab. XCVIII. figg. 29, 30, 31, ♂; 32, ♀.)

Pamphila edda, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxx (♂ ♀) (1891)¹.

? *Hesperia pelora*, Plötz, Stett. ent. Zeit. 1882, p. 344².

Alis fuscis, anticis maculis duabus parvis inter ramos medianos, tertia in cellula, punctisque tribus in linea transversa subapicalibus, albo-hyalinis: subtus multo pallidioribus, anticis area mediana obscuriore, maculis ut supra, plaga elongata angulum analem versus albida; posticis maculis quatuor aut quinque minutis in serie curvata apicem versus quoque albidis; palpis subtus griseis; ventre albido. ♀ mari similis, sed maculis omnibus majoribus, ea in cellula geminata, macula quoque supra venam submedianam et altera minuta supra eam albidis.

Hab. MEXICO, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Panima and San Gerónimo in Vera Paz (*Champion*); PANAMA, Chiriqui¹ (*Ribbe, in mus. Staudinger*).—GUIANA.

Dr. Staudinger has lent us both the male and female types of this species from Chiriqui, and we have others from Mexico and Guatemala agreeing with them. The female is scarcely separable from a specimen of the same sex sent us by Herr G. Semper under the name of *Hesperia pelora*, Plötz, from Brazil², but in the absence of the male of the Brazilian insect it is impossible to identify Plötz's species with certainty. Our figures of the insect are taken from Mabilles's types. For the genitalia of the male, see Tab. XCVIII. fig. 31.

2. *Cobalopsis dyscritus*. (Tab. XCVIII. fig. 33, ♂.)

Carystus dyscritus, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. cxv (1891)¹.

♂. Supra *C. eddæ* similis, quoad colorem, subtus posticis ochraceoribus, partibus genitaliis dissimilibus.

♀ mari similis, sed anticis macula submediana elongata ochracea.

Hab. MEXICO, Teapa (*H. H. Smith*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—COLOMBIA, San Juan¹; GUIANA; AMAZONS; PERU.

The male of this species, which we have identified from specimens from the Amazons lent us by Dr. Staudinger, is so like the corresponding sex of *C. eddæ* that we should have placed them together without hesitation, had not their genitalia proved to be very different. We have dissected several males from various localities, and as these characters are constant we are compelled to treat the two insects as distinct. We possess eight males of *C. dyscritus*, one of which is from Costa Rica, and with these we associate a single female from Chiriqui; this latter differs considerably from the same sex of *C. eddæ*, being, indeed, very much like the male.

For the genitalia of the male, see Tab. XCVIII. fig. 33.

ONOPHAS, gen. nov.

Pamphila columbaria, H.-S. (= *P. flossites*, Butl.), is one of the numerous Tropical-American forms nearly allied to *Cobalus*, but cannot be included in that genus, as defined by Watson, on account of the brand on the primaries of the male, the brand again being different in form from that of the species of the neighbouring genera. We are therefore compelled to place this insect in a separate genus.

The antennæ are considerably more than half the length of the costa, and have an elongate, stout club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are moderately long and somewhat pointed at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one nearly three times the length of the lower, the latter being shorter than the third median segment; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are very faint. The body is robust. The middle tibiæ are

spined, and the hind tibiæ have two pairs of spurs. The primaries of the male have a very narrow, linear, oblique, interrupted brand, extending from the base of the second median branch to below the first, at some distance from its point of origin, and in a line with this, above the middle of the submedian nervure, there is a transverse fold.

The genitalia of the male are very peculiar in form.

1. *Onophas columbaria*. (Tab. XCVIII. figg. 34-37, ♂.)

Pamphila columbaria, Herr.-Schäff. Corresp.-Blatt Regensb. 1870, p. 159¹.

Pamphila flossites, Butl. P. Z. S. 1873, p. 687².

Alis fuscis ad basin et corpore supra viridi-cæruleis, stigmatibus nigrescentibus; anticis maculis duabus indistinctis inter ramos medianos, proxima majore, sordide flavis; subtus ochraceis, anticis area mediana fusca, maculis paginæ superioris et altera elongata infra eas albidis; posticis striga a basi posticarum angulum analem versus eunte, flavidis; subtus palpis et thorace cæruleo-albis, abdomine albo.

♀ mari similis.

Hab. PANAMA (*Ribbe, ex Staudinger*).—VENEZUELA; GUIANA; AMAZONS²; BRAZIL¹; TRINIDAD.

Eleven examples of this distinct species are before us, three being from Panama. *O. columbaria* may readily be distinguished from all the allied forms by its peculiar coloration—the body, head, and base of the wings being bright blue, and the secondaries ochreous beneath. Dr. Staudinger has sent us examples of this insect under the name of *Pamphila columbaria*, Herrich-Schäffer, and we have accepted his determination as correct. For the genitalia of the male, see Tab. XCVIII. fig. 37.

ÆONUS, gen. nov.

The single species from Mexico from which the following characters are taken is nearly related to *Onophas* and *Perimeles*, having a somewhat similar brand in the male; but the genitalia in this sex are totally dissimilar in structure, and the neuration of the primaries also differs. *Hesperia degener*, Plötz, from Venezuela?, also probably belongs here.

The antennæ are about half the length of the costa, and have a rather stout club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are produced, and are somewhat pointed at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one more than four times the length of the lower, the latter very short, being about half the length of the third median segment and almost in a line with it; the lower radial is greatly depressed at the base; the first branch arises considerably before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are oblique and very faint. The body is moderately robust. The middle tibiæ are spined, the hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous

treble brand formed thus: (1) an oblique curved streak extending from near the distal end of the second median segment to the first median branch at some distance from its point of origin; (2) a short, slightly oblique, piece just below this; (3) another oblique piece extending forward from the submedian nervure at some distance before the middle.

1. *Æonus pyste*, sp. n. (Tab. XCVIII. figg. 38–41, ♂.)

Alis fuscis, stigmatе paulo obscuriore, anticis maculis duabus in linea obliqua, una angusta et elongata inter ramos medianos primum et secundum, altera minore ultra eam (interdum tertia minutissima subapicali), albo-hyalinis: subtus forsan dilutioribus, litura supra venam submedianam albida; posticis punctis minutis indistinctis quatuor marginem externum versus flavis.

♀ mari similis, sed anticis supra macula inter ramos medianos primum et secundum latiore et subquadrata: subtus litura submediana majore.

Hab. MEXICO, Atoyac (*H. H. Smith*).

We have ten specimens of this species, including both sexes, all collected by Mr. Smith at Atoyac. Dr. Staudinger has sent us a male very like it, from Herrich-Schäffer's collection, under the name of *Goniloba degener*; but this insect has a very distinct hyaline spot towards the apex of the primaries, and these wings are without the whitish submedian streak beneath, and the brand also is somewhat differently shaped. In *Æ. pyste* there is sometimes a minute white spot towards the apex of the primaries. For the genitalia of the male, see Tab. XCVIII. fig. 41.

MUCIA, gen. nov.

The widely-distributed Tropical-American insect referred to this genus has exactly the facies of a *Cobalus*, but the treble brand on the primaries in the male separates it at once. This last-mentioned character brings it near *Onophas*, *Æonus*, *Perimeles*, *Lerema*, &c., but the form of the brand is a little different from that of the species of all these genera, and the genitalia of the male also. We have one or two unnamed South-American forms in our collection that probably belong here, but we have not as yet seen males of them.

The antennæ are about half the length of the costa, and have a rather short stout club, terminating in a long crook. The third joint of the palpi is very short, stout, and bluntly conical. The primaries are moderately long, somewhat pointed at the tip, the costa arched at the base; the discocellulars are oblique, the upper one more than twice the length of the lower; the lower radial is strongly depressed at the base; the first branch arises from the middle of the median nervure, the second at some distance before the lower angle of the cell. The secondaries are a little produced at the anal angle; the discocellulars are oblique, the lower one distinct. The body is robust. The middle tibiæ are spined, and the hind tibiæ have two pairs of spurs. The primaries of the male have a narrow, curved, oblique, interrupted brand formed of

three pieces, the middle piece placed at a different angle to the others: (1) a short streak extending from the base of the second median branch to the first at some distance from its point of origin; (2) an oblique piece just below this; (3) a straight streak extending forwards from the middle of the submedian nervure.

As we possess but two males of *M. thyia*, each from a different locality, we have not ventured to remove the scales from the wings; we have, however, dissected the genitalia of one of them. It may be noted that the proximal end of the central piece of the brand slopes downward, instead of upward as in the genus *Æonus*.

1. *Mucia thyia*, sp. n. (Tab. XCVIII. figg. 42, 43, 44, ♂.)

Alis fuscis, stigmatibus paulo obscuriore, anticis maculis parvis duabus in linea obliqua, una inter ramos medianos primum et secundum, altera ultra eam, albo-hyalinis: subtus fere ut supra, sed anticis punctis minutis quatuor in serie irregulari subapicalibus, posticis tribus in serie curvata apicem versus, nigris; abdomine subtus ochraceo.

♀ mari similis, sed anticis maculis majoribus.

Hab. MEXICO, Rincon in Guerrero, Atoyac (*H. H. Smith*).—BRAZIL, Matto Grosso.

Of this species we have a pair from Mexico and a male from Chapada, in Matto Grosso. It may readily be separated from most of the allied forms by the black dots on the underside of both wings towards the apex. We have in our collection two females of an unnamed and allied species from Brazil, but in these the black spots are in a different position. *M. thyia* is very like *Eutychide asema* (Mab.), but may at once be distinguished by the form of the brand and by the presence of some small black spots near the apex of the primaries beneath. Both species have a curved line of black spots on the underside of the secondaries, though these are rather differently placed in the two insects. For the genitalia of the male, see Tab. XCVIII. fig. 44.

MORYS, gen. nov.

The single species placed here, *Apauustus valerius*, Möschl., is one of many very similarly coloured Tropical-American Pamphilinæ, each of which exhibits characteristics of its own, the present insect having a long, broad, oblique, interrupted brand on the primaries of the male, and the genitalia in this sex very peculiarly formed, the harpes terminating in two widely divergent acuminate points, much as in the species of *Mæris*.

The antennæ are about half the length of the costa, and have a rather elongate club, terminating in a long crook. The third joint of the palpi is short, stout, and bluntly conical. The primaries are moderately elongate, somewhat pointed at the tip in the male, blunt in the female, the costa arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one twice as long as the lower, the latter being of the same length as the third median segment; the lower radial is depressed at the base; the first branch arises slightly before the

middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are faint. The body is moderately stout. The middle tibiæ are spined, and the hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous, broad, oblique, interrupted brand extending from the base of the second median branch to a little before the middle of the submedian nervure, nearly filling the angle between the first median branch and the second median segment.

1. **Morys valerius.** (Tab. XCVIII. figg. 45, 46, 47, ♂.)

Apaustus valerius, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 223 (♀)¹.

Alis fuscis, stigmatе nigrescente, anticis maculis duabus in linea obliqua, una transversa inter ramos medianos primum et secundum, altera ultra eam minore, punctisque duobus in linea transversa subapicalibus, albo-hyalinis: subtus ut supra, sed pallidioribus, anticis area mediana obscuriore; posticis punctis minutis quatuor in serie curvata apicem versus flavidis; palpis et corpore subtus albidis.

♀ mari similis, sed purpureo tinctis, anticis interdum punctis tribus in linea obliqua ultra cellulam albo-hyalinis.

Hab. MEXICO, Tierra Colorada, Dos Arroyos, Acapulco (*H. H. Smith*), Paso de San Juan, Jalapa (*coll. Schaus*), Valladolid (*Gaumer*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).—COLOMBIA¹; VENEZUELA; BRAZIL.

Dr. Staudinger has lent us the type of this species, which was described from a single female from Colombia, and with this we associate numerous specimens of both sexes from Central America. The females differ from the males in having the primaries blunter at the apex. *M. valerius* is very like *Cobalus tripunctus*, H.-S., = *Pamphila ancus*, Möschl., the female types of which have also been lent us by Dr. Staudinger, but the males we refer to this species are without a brand*. The females of *M. valerius* vary somewhat in the coloration of the underside of the secondaries. We have seen specimens of it in the British Museum labelled *Pamphila cerdo*, Boisd. Our figures are all taken from Mexican examples. For the genitalia of the male, see Tab. XCVIII. fig. 47.

PERIMELES, gen. nov.

The single species we place here, *Hesperia remus*, Fabr., a widely distributed Tropical-American insect, we had at first associated with *Talides striga*, Hübn., but on closer examination we find that the brand on the primaries of the male is of a different form and the genitalia also in this sex are very dissimilar, hence we have been compelled to treat them as generically distinct. Both insects have the underside of the wings very peculiarly coloured. *Perimeles* has the brand shaped almost exactly as in *Mucia* (except that the upper piece is much longer), from which it differs in having a longer second median segment to the primaries and the male genitalia very dissimilar in structure.

* *Apaustus sulla*, Möschl., from Colombia, the type of which we have seen, is also probably synonymous with *C. tripunctus*, H.-S.

The antennæ are half the length of the costa and have a rather stout club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are somewhat pointed at the tip and have the costa arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one more than twice the length of the lower, the latter equal to the third median segment; the lower radial is depressed at the base; the first branch arises near the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are slightly produced at the anal angle; the discocellulars are faint and strongly oblique. The body is moderately robust. The middle tibiæ are spined, the hind tibiæ have two pairs of spurs. The femora and the hind tibiæ are clothed with long hairs. The primaries of the male have a conspicuous, curved, oblique interrupted brand formed of three portions: (1) a long curved streak extending from the base of the second median branch to the first at some little distance from its point of origin; (2) a short longitudinal one just below this; (3) a transverse piece running forward from the submedian nervure at a little before the middle, this latter not being always distinct.

1. **Perimeles remus.** (Tab. XCIX. figg. 1, 2, 3, ♂.)

Hesperia remus, Fabr. Ent. Syst., Suppl. p. 434¹.

Cobalus remus, Butl. Cat. Fabr. Diurn. Lep. p. 273, t. 3. f. 3².

Cobalus vopiscus, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 83³.

Phlebodes justinoides, Butl. & Druce, Cist. Ent. i. p. 113⁴.

Alis fuscis, stigmatibus obscuriore, posticis regione costali præsertim ad basin pilis obscurioribus vestitis: subtus fuscis, anticis macula magna ferruginea, subapicali utrinque albido ornato; posticis triente basali læte castaneo-fusco, extrorsum albo-marginato; palpis subtus pilis ochraceis, corpore quoque subtus albido.

♀ mari similis.

Hab. MEXICO, Dos Arroyos and La Venta in Guerrero, Atoyac, Fortin, Teapa (*H. H. Smith*), Coatepec, Paso de San Juan (*coll. Schaus*), Jalapa (*F. D. G., M. Trujillo, Höge*), Cordova (*Rümeli*), Orizaba (*H. J. Elwes*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Choctum, Chisoy Valley (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S., Champion*), Panima, Dueñas (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*), San Pedro (*Whitely*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*⁴), Irazu, Caché (*Rogers*); PANAMA, Bugaba (*Champion*), Calobre (*Arcé*).—SOUTH AMERICA to Brazil.

A very common insect in Central America, easily recognizable by the colour of the underside of the wings. It varies greatly in size. Dr. Butler's type of *P. justinoides*, which is now in our collection, is a female. We figure the underside of a male example from Guatemala; also the fore wing, to show the position of the brand (Tab. XCIX. fig. 2), and the genitalia, for which latter see Tab. XCIX. fig. 3.

TIGASIS, gen. nov.

The Costa Rican insect placed here is allied to *Mucia*, *Perimeles*, and other branded forms nearly related to *Cobalus*. It differs, however, from all these, not only in the form of the brand in the male, but also in the structure of the genitalia, and the species must at present be placed in a genus by itself. The wings and body are of a uniform dark fuscous colour, as in so many other Tropical-American Pamphilinæ.

The antennæ are more than half the length of the costa, and have a rather stout club, terminating in a long crook. (The palpi are broken off, but the third joint is probably short.) The primaries are moderately long, somewhat pointed at the tip, and slightly arched on the costa at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about three times the length of the lower; the lower radial is strongly depressed at the base; the first branch arises from a little before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are slightly produced at the anal angle; the discocellulars are faint. The body is robust. The hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous, curved, oblique brand, extending from the base of the second median branch to the middle of the submedian nervure, crossing the first median branch far from its point of origin, and interrupted below it.

1. **Tigasis zalates**, sp. n. (Tab. XCIX. figg. 4, 5, ♂.)

Alis fuscis, unicoloribus, stigmatibus obscurioribus: subtus dilutioribus et forsitan rufescentioribus, anticis margine interiore apicem versus pallidioribus.

♀ ignota.

Hab. COSTA RICA, Caché (*Rogers*).

One specimen only has been received. For the genitalia, see Tab. XCIX. fig. 5.

EUTYCHIDE, gen. nov.

We take as the type of this genus *Hesperia physcella*, Hew., and associate with it several other Tropical-American species. It differs from *Cobalus* in having a very conspicuous brand on the primaries in the male, this being divided into three separate portions: (1) an elongate >-shaped piece at the junction of the second median segment with the first median branch; (2) a longitudinal streak below it; (3) a similar streak just above the submedian nervure. In addition to *Hesperia physcella*, which is confined to South America, *Eutychide* includes *H. midia*, Hew., *H. achelous*, Plötz, *Pamphila asema*, Mab., *Cobalus cingulicornis*, H.-S., and others. Watson places *H. physcella* under *Cobalus*, though he states that there are no secondary sexual characters on the wings of the male.

The antennæ are about half the length of the costa, and have an elongate club

terminating in a long crook. The palpi have the third joint very short and bluntly conical. The primaries are moderately elongate and pointed at the tip in the male (except in *E. cingulicornis*), blunter in the female; the cell is less than two-thirds the length of the costa; the discocellulars are very oblique, the upper one about twice the length of the lower, the latter slightly shorter than the third median segment; the lower radial is depressed at the base; the first branch arises before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are faint and very oblique. The middle tibiæ are conspicuously spined, and the hind tibiæ have two pairs of spurs. The body is robust. The primaries of the male have a conspicuous treble brand, as described above, and the secondaries in this sex have long hairs on the upper edge of the abdominal fold.

The genitalia of the males of the six species dissected show considerable divergence in form, as may be seen by a reference to our Plate. In *E. cingulicornis* the antennæ are more elongate than in the other species we refer to the genus, and the primaries are also blunter at the tip.

The brand is greatly developed in *E. midia*, *E. ochus*, *E. lycortas*, *E. achelous*, and *E. umber*, moderately so in the other species; in *E. achelous* the lower arm of the upper >-shaped piece is very short.

a. Primaries with hyaline spots.

a'. Secondaries broadly white at the base beneath.

1. *Eutychide cingulicornis*. (Tab. XCIX. figg. 6-9, ♂.)

Cobalus cingulicornis, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 82¹.

Alis obscure fuscis, stigmatе concolore, anticis maculis tribus in serie obliqua infra et ultra cellulam, secunda maxima, puncto minuto subapicali, omnibus hyalinis; posticis quoque punctis duobus minutis (interdum uno) ultra cellulam albis: subtus fuscis, rufo lavatis, anticis costa usque cellulæ finem flavida, maculis ut supra, angulum analem versus grisescentibus; posticis triente basali griseo-albis, bitriente externo rufo-fuscis; antennis ad clavæ basin flavo annulatis.

♀ mari similis.

Hab. GUATEMALA, Central Valleys, Yzabal (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui, Veraguas (*Arcé*).—SOUTH AMERICA to Brazil.

Our collection contains a long series of this well-marked species, including eight from within our limits. Southern specimens differ slightly in having two small spots, instead of one, near the apex of the primaries, and sometimes another in the cell, and in the absence of the two minute spots on the secondaries above. We figure a male insect from Yzabal; also the fore wing, to show the position of the brand (Tab. XCIX. fig. 8), and the genitalia, for which latter see Tab. XCIX. fig. 9.

b'. Secondaries dark at the base beneath.

2. **Eutychide midia**. (Tab. XCIX. figg. 10–13, ♂.)

Hesperia midia, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 83 (1877) ¹.

Hesperia gura, Plötz, Stett. ent. Zeit. 1883, p. 41 ².

Alis fuscis, stigmatē concolore; anticis maculis duabus ad cellulæ finem inter ramos medianos, exteriore minore, interdum una quoque submediana, punctisque tribus in linea transversa (interdum una infra eos) subapicalibus, posticis nonnunquam puncto minuto ultra cellulam (interdum absente), omnibus hyalinis: subtus paulo rufescentioribus, posticis puncto (interdum duobus) ultra cellulam albido; capite et corpore virescentibus.

♀ mari similis.

Hab. MEXICO, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Chiriqui ² (*Ribbe, in mus. Staudinger* ¹).—VENEZUELA.

Hewitson described this species from a specimen from Chiriqui in Dr. Staudinger's collection. We have seen ten examples altogether, all but one from Central America. A male insect from Chiriqui is figured; also the fore wing, to show the great development of the brand (Tab. XCIX. fig. 12), and the genitalia, for which latter see Tab. XCIX. fig. 13.

3. **Eutychide ochus**, sp. n. (Tab. XCIX. figg. 14, 15, 16, ♂.)

E. midia persimilis, sed minor, anticis maculis discalibus quoque minoribus; colore viridi minus obvio.

Hab. MEXICO, Atoyac (*H. H. Smith*); NICARAGUA, Chontales (*Belt*).—AMAZONS.

Five specimens of this species have been seen by us, all males, three being from within our limits. It is very like *E. midia*, but differs as noticed above. *E. ochus* also closely resembles *Rhinthon cynea*, but may be separated from it by the form of the brand on the primaries, and by the absence of the pale patch at the anal angle of these wings beneath. The genitalia of the male are very similar to those of *E. midia*, see Tab. XCIX. fig. 16. The insect figured is from Atoyac.

4. **Eutychide orthos**, sp. n. (Tab. XCIX. figg. 17, 18, 19, ♂.)

Alis fuscis, stigmatē concolore, anticis maculis duabus ad cellulæ finem inter ramos medianos, exteriore minore, albo-hyalinis: subtus ut supra, sed purpureo tinctis, anticis area mediana nigrescente, ad angulum analem striga albida, posticis immaculatis; capite et corpore supra virescentibus; abdomine subtus albo; palpis fusco-griseis.

♀ ignota.

Hab. PANAMA, Chiriqui (*ex Staudinger*).

We possess three males of this species, all obtained from Dr. Staudinger. It is very like *E. ochus*, but smaller, the brand on the primaries is much less developed (each of the streaks being narrow), and the genitalia are differently formed. From small examples of the same sex of *Rhinthon cynea* (Hew.) (= *R. kasus*, Möschl.) it may at once be separated by the shape of the brand and by the absence of the pencil of hairs beneath the median nervure towards the base. For the genitalia of the male, see Tab. XCIX. fig. 19.

5. *Eutychide lycortas*, sp. n. (Tab. XCIX. figg. 20, 21, ♂.)

Alis fuscis, stigmatе concolore, anticis maculis tribus in linea obliqua infra et ultra cellulam, una supra venam submedianam, secunda maxima inter ramos medianos primum et secundum, tertia ultra eam, punctisque tribus in linea transversa subapicalibus, albo-hyalinis: subtus anticis maculis ut supra, sed infima permagna et sordide alba, costa usque ad apicem castanea, illinc linea obliqua argentea, area mediana fusca, margine externo pallidiore et griseo tincto; posticis costa late castanea, area ad cellulæ finem obscura, margine externo pallidiore et squamis griseis vestitis, fascia indistincta ab apice ultra cellulæ finem transeunte quoque grisea, margine interiore purpureo tincto; palpis et abdomine subtus grisescentibus.

♀ ignota.

Hab. MEXICO, Atoyac (*H. H. Smith*).

A single male specimen only of this species has been received. The coloration of the underside of the wings separates *E. lycortas* at once from *E. ochus* and *E. orthos*, to which it is nearly allied.

b. Primaries immaculate.

6. *Eutychide achelous*.

Hesperia achelous, Plötz, Stett. ent. Zeit. 1882, p. 315¹.

Alis nitente fuscis, stigmatе concolore: subtus ut supra, anticis ad angulum analem et posticis margine interno paulo pallidioribus; capite et thorace supra viridi tinctis.

♀ nobis ignota.

Hab. PANAMA, Chiriqui¹ (*mus. Staudinger*).—AMAZONS.

Dr. Staudinger has sent us three specimens from Panama for examination under the name of *Pamphila achelous*, Plötz, two males and one female; the former belong here, and the latter we refer to *Metiscus atheas*. We also have a male of the present species from the Amazons. The brand is greatly developed, the streaks being very narrowly separated, but the lower arm of the >-shaped upper piece is very short. This character will separate *E. achelous* from most of the numerous similarly-coloured American forms.

7. *Eutychide umber*.

Cobalus umber, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 83¹.

Alis nigro-fuscis, stigmatе concolore: subtus dilutioribus; anticis margine interno ad angulum analem et macula parva ultra cellulam albidis, apice, costa et posticis (nisi margine interno) rufo tinctis; capite et thorace supra pilis viridibus vestitis.

♀ nobis ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

There is a single male example of this insect in Dr. Staudinger's collection. It is one of three forms he has sent us under the name of *Pamphila umber*, H.-S., and the specific name can be provisionally used for the present species. *E. umber* is exactly like *Mnasinous patage* in general facies and coloration, but differs from it in having a greatly developed brand, the insect in this respect agreeing with the species placed by

us under *Eutychie*. The several portions of the brand are all very long and stout, the upper >-shaped piece having the two arms about equal in length, the insect differing in this respect from *E. achelous*, in which the lower arm is very short.

8. *Eutychie asema*. (Tab. XCIX. figg. 22, 23, ♂.)

Pamphila asema, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxxi¹.

Alis murinis, stigmatibus concoloribus: subtus pallidioribus, posticis squamis paucis dispersis albidis et ultra cellulam maculis tribus nigris; palpis obscure griseis.

♀ mari similis.

Hab. HONDURAS (*Wittkugel*, in *mus. Staudinger*¹).—BRITISH GUIANA.

Dr. Staudinger has lent us the type of this insect, which is separable from most of the numerous allied forms by the shape of the brand on the primaries, and by the scattered whitish scales on the secondaries beneath. M. Mabille does not mention the small blackish spots on the underside of the secondaries in his description¹.

The brand is less developed than in *E. achelous*, each of the longitudinal streaks being narrow, and the two arms of the >-shaped piece are about equal in length.

We have two specimens of the same species from British Guiana, captured by H. Whitely on the river Takutu; and there is a worn female from Paso de San Juan, Mexico, in Mr. Schaus's collection, that may belong here. For the genitalia of the male, see Tab. XCIX. fig. 23.

9. *Eutychie subsordidus*.

Pamphila subsordida, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxix (♀)¹.

♀. Alis fuscis, immaculatis, squamis et pilis ochraceis sparsim vestitis, posticis regione costali obscurioribus: subtus pallide fuscis; anticis dimidio costali et posticis totis squamis ochraceis ornatis; linea circumoculari et palpis subtus ochraceis.

Hab. HONDURAS (*mus. Staudinger*¹).

Dr. Staudinger has lent us the type of this species, which is now without a body.

Its true position cannot be ascertained in the absence of the male, but as it appears to be very nearly allied to *E. asema*, we place it here for the present. The yellow line round the eyes and the different coloration of the under surface of the wings separate it from that species.

PHANIS, gen. nov.

We take *Hesperia justinianus*, Latr. (= *Thracides aletes*, Hübn.), a common Tropical-American insect, as the type of this genus. It is closely allied to *Artines*, the brand on the primaries being very similarly shaped, except that it is more excised on the outer edge (the form thus becoming >-shaped); but the third joint of the palpi is short and stout, and the genitalia of the male are different in structure. From *Eutychie* the form of the brand sufficiently distinguishes it; the genitalia, too, are very dissimilar.

Hesperia almota, Hew., from Venezuela and Guiana, perhaps belongs here; but this species has the genitalia more like those of *Artines*, while the latter has a longer and more slender terminal joint to the palpi.

The antennæ are rather more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are moderately elongate, rounded on the costa, and blunt at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one twice as long as the lower, the latter being of the same length as the third median segment; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are transverse and very faint. The body is moderately stout. The middle tibiæ are spined, the hind tibiæ have two pairs of spurs. The primaries of the male have a single, stout, inconspicuous, >-shaped brand, the long upper portion extending beneath the second median segment, the lower one along the first median branch.

1. **Phanis justinianus.** (Tab. XCIX. figg. 24–27, ♂.)

Hesperia justinianus, Latr. Enc. Méth. ix. p. 760¹.

Thracides aletes, Geyer, in Hübner's Zutr. ex. Schmett. iv. p. 31, ff. 731, 732².

Alis obscure fuscis, stigmatе grisescente, anticis maculis tribus in serie obliqua infra et ultra cellulam, secunda maxima, punctis duobus aut tribus in linea transversa subapicalibus, omnibus hyalinis: subtus fuscis, anticis angulum analem versus pallidioribus, maculis ut supra; posticis area discali ochracea maculis obscuris marginata, anticis ad apicem et posticis plus minusve schistaceo lavatis; antennis ad clavæ basin flavo annulatis.

♀ mari similis.

Hab. MEXICO, Dos Arroyos in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*), Coatepec (*coll. Schaus*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Irazu (*Rogers*). — SOUTH AMERICA to Brazil^{1 2}.

At first sight, *P. justinianus* is very like *Eutychide cingulicornis*, but the two species differ widely beneath, as already described; the genitalia and brand of the males, too, are quite different in form. Mr. Smith has sent us a long series of this insect from Atoyac. Some of our Central-American specimens vary a good deal in the amount of the buff colour on the disc of the secondaries beneath. The primaries occasionally have a single subapical spot only on the upperside. We figure a male insect from Atoyac, also the fore wing, to show the position of the brand (Tab. XCIX. fig. 26), and the genitalia, for which latter see Tab. XCIX. fig. 27.

EUROTO, gen. nov.

The species we refer to this genus are nearly allied to *Eutychide*, but the form of the brand on the primaries in the male is different: the longitudinal streak above the submedian nervure is absent, and the piece between the second median segment and

the first median branch has lost the lower arm of the \succ . We take *Pamphila compta*, Butl., as the type, and associate with it some other Tropical-American species described below. *E. compta*, *E. miccythus*, *E. chlorocephala*, and *E. lyde* agree fairly well *inter se*; but *E. æagrus* differs in the structure of the genitalia, as well as in general coloration, &c., and it may have ultimately to be removed. *Euroto* differs from *Morys*, not only in the form of the brand, but in the much longer second median segment of the primaries also.

The antennæ are rather more than half the length of the costa (longer in *E. chlorocephala*), and have an elongate club, terminating in a long crook. The palpi have the third joint very short and bluntly conical. The primaries are somewhat pointed at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the lower one is short and of the same length as the third median segment; the lower radial is depressed at the base; the first branch arises before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are very feebly lobed at the anal angle; the discocellulars are faint. The middle tibiæ are spined, the hind tibiæ have two pairs of spurs. The body is stout. The primaries of the male have a conspicuous double brand: (1) a piece extending along the whole length of the second median segment, and filling the angle between this and the first median branch; (2) a short longitudinal streak below this.

a. Primaries with small, clearly defined, hyaline spots.

1. ***Euroto compta*.** (Tab. XCIX. figg. 28–31, ♂.)

Pamphila compta, Butl. Trans. Ent. Soc. 1877, p. 152¹.

Pamphila geisa, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 216 (♂)².

Alis fuscis, stigmatibus nigrescentibus, anticis maculis tribus parvis infra et ultra cellulam, una maxima et subquadrata inter ramos medianos primum et secundum, secunda ultra eam minore, tertia subapicali minima, albo-hyalinis: subtus ut supra, sed dilutioribus, anticis litura (interdum valde indistincta) submediana angulum analem versus ochracea; posticis macula ad cellulæ finem, aliisque sex in serie curvata margini externo propioribus, ochraceis; venis coloris ejusdem ornatis; palpis et corpore subtus griseis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).—COLOMBIA²; GUIANA; AMAZONS¹; BRAZIL.

Dr. Staudinger has lent us the type of *Pamphila geisa*, Möschl., from Colombia, as well as a second specimen from Chiriqui, both males, and these do not differ from *P. compta*, Butl., from the Amazons; we also have examples of the same species from Guiana and Brazil*. *E. compta* is very like *Morys valerius* (Möschl.), from

* We have several specimens in our collection of a closely allied unnamed insect from Pará, these differing from *E. compta* in having the harpes of the male broadly truncate at the apex. *Cobalus tripunctus*, H.-S. (= *Pamphila ancus*, Möschl., and probably *Apauustus sulla*, Möschl., also), is another very similar form, but, if rightly identified by us, it is without a brand in the male.

which it may be known by the differently shaped brand on the primaries, the second median segment of these wings being also much longer; the present insect, moreover, has the nervures on the underside of the secondaries paler, and there is an additional ochreous spot at the end of the cell.

For the genitalia of the male, see Tab. XCIX. fig. 31.

b. Primaries immaculate, or with very minute hyaline spots.

2. Euroto lyde, sp. n. (Tab. XCIX. figg. 32, 33, ♂.)

Alis obscure fuscis, stigmatate nigrescente, anticis punctis minutissimis quatuor, uno inter ramos medianos secundum et tertium, et tribus subapicalibus in linea transversa (interdum absentibus), albis: subtus fuscis, anticis margine interno et externo pallidioribus, punctis ut supra; posticis ultra cellulam indistincte schistaceo transfasciatis, maculis quibusdam area discali coloris ejusdem; palpis subtus pilis griseis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*), Teapa (*H. H. Smith*), Paso de San Juan (*coll. Schaus*); GUATEMALA, Pacific coast (*F. D. G. & O. S.*), Zapote (*Champion*); COSTA RICA, Caché (*Rogers*).

This is a very common species in Eastern Mexico, whence a large series, including both sexes, has been sent us by Mr. H. H. Smith. There is a slight variation in the number of the minute spots on the primaries, and in a few specimens they are altogether wanting. For the genitalia of the male, see Tab. XCIX. fig. 33; they are very like those of *E. compta*.

3. Euroto miccythus, sp. n. (Tab. XCIX. figg. 34, 35, ♂.)

Alis fuscis, stigmatate concolore, anticis puncto minutissimo ultra cellulam, tribus subapicalibus in linea transversa, albo-hyalinis, omnibus interdum absentibus: subtus ut supra, anticis costa et apice posticisque (nisi margine interno) rufo tinctis, anticis area mediana nigrescente, ad angulum analem pallidioribus; posticis maculis indistinctis discalibus in serie curvata, una quoque ad cellulæ finem, sordide ochraceis; palpis subtus pilis flavis et fuscis intermixtis.

♀ mari similis.

Hab. MEXICO, Acaguizotla and Rincon in Guerrero, Teapa in Tabasco (*H. H. Smith*); COSTA RICA, Irazu (*Rogers*).

Of this species we have six males and two females before us, all but one of them being from Mexico.

It is very like *E. lyde*, but differs from it in the coloration of the underside of the secondaries, as well as in the form of the genitalia of the male (three of which we have dissected); for the latter, see Tab. XCIX. fig. 35.

4. Euroto chlorocephala, sp. n. (Tab. XCIX. fig. 36, ♂.)

Alis fuscis, stigmatate magna nigrescente: subtus ut supra, sed pallidioribus, anticis punctis variis indistinctis, duobus inter ramos medianos, uno in regione costali, altero subapicali, albidis; posticis punctis quinque

in serie curvata discalibus et uno ad cellulæ finem coloris ejusdem; capite, thorace et palpis subtus pilis nitenti-viridibus vestitis; oculis permagnis.

♀ ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

We are again indebted to Dr. Staudinger for the loan of two male examples of this very distinct species. It is easily distinguishable from its allies by the vivid-green hairs on the head and thorax, the large eyes, the pointed primaries, which have a large black brand, and by the very long antennæ. It may prove to be not really congeneric with *E. compta*.

c. Primaries with large flavo-hyaline spots.

5. **Euroto œagrus**, sp. n. (Tab. XCIX. figg. 37, 38, 39, ♂.)

Alis fuscis, stigmatе concolore, anticis maculis duabus magnis ramo mediano secundo separatis, tertia elongata apicem propiore minore, flavo-hyalinis, area costali et supra venam submedianam areaque interna posticarum squamis aureis ornatis: subtus ut supra, sed anticis costa et apice areaque tota posticarum squamis aureis vestitis; palpis subtus et corpore pilis flavis intermixtis; ciliis externe ochraceis.

♀ mari similis.

Hab. COSTA RICA, Irazu, Rio Sucio (*Rogers*).

Our collection contains two males and two females of this species, which may easily be distinguished amongst its allies by the very large flavo-hyaline spots on the primaries. For the genitalia, see Tab. XCIX. fig. 39.

PHLEBODES.

Phlebodes, Hübner, Verz. bek. Schmett. p. 107 (1816); Watson, P. Z. S. 1893, p. 110.

Watson included a single species only, *Papilio pertinax*, Cram., under this genus; but the insect thus identified by him is really *Apaustus tiberius*, Möschl., which does not at all agree with Cramer's figure. As we have not been able to determine *P. pertinax* with certainty, we cannot say whether that insect answers to Watson's definition of *Phlebodes* or not; hence we are compelled to take *A. tiberius* as the type of the present genus, and to adopt Hübner's name provisionally for it. *Pamphila meton*, Mab., and some allied unnamed species from South America in our collection probably belong here; these have a conspicuous, oblique, sinuous, interrupted greyish brand, bordered above and within by patches of velvety-black scales.

The antennæ are about half the length of the costa, and have an elongate club, terminating in a long crook. The palpi have the third joint very short and bluntly conical. The primaries are somewhat pointed at the tip; the costa is slightly arched throughout; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one twice the length of the lower, the latter slightly shorter than the third median segment; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second close to

the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are faint. The body is moderately robust. The middle tibiæ are furnished with very long spines; the hind tibiæ have two pairs of spurs. The brand on the primaries of the male extends from the base of the second median branch almost to the middle of the submedian nervure, and it is interrupted towards its lower end.

The genitalia of the males of *P. tiberius*, of which we have dissected specimens from Mexico, Guatemala, and Guiana, are very remarkably formed, the harpes terminating in a very long hook.

1. *Phlebodes tiberius*. (Tab. XCIX. figg. 40–43, ♂.)

Apaustus tiberius, Möschl. Verh. zool.-bot. Ges. Wien, 1882, p. 329¹.

Phlebodes pertinax, Wats. P. Z. S. 1893, p. 110 (nec Cramer)².

Alis obscure fuscis, stigmatibus grisescentibus, supra et ad marginem internum ejus nigrescentibus, anticis maculis quatuor in serie curvata obliqua infra et ultra cellulam, ea ad apicem minuta (interdum absente), punctis tribus minutissimis subapicalibus in linea transversa, ochraceis: subtus pallidioribus, anticis costa et apice obscure ochraceis, maculis paginæ superioris indistincte indicatis, ea ad venam submedianam obsoleta; posticis area marginis costalis late et linea transversa maculosa ultra cellulam flavescentibus.

♀ nobis ignota.

Hab. MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Panima in Vera Paz (*Champion*), Polochic Valley (*F. D. G. & O. S.*); PANAMA, Chiriqui (*mus. Staudinger*).—COLOMBIA; GUIANA¹.

Of this species we have seen ten examples, all males, six of them being from our region. Dr. Staudinger has lent us the type of *Apaustus tiberius* for examination. In the male of this insect the secondaries are clothed with very long hairs along the inner edge of the abdominal fold. For the genitalia, see Tab. XCIX. fig. 43.

LEREMA.

Lerema, Scudder, Rep. Peabody Ac. Sci. iv. p. 82 (1872); Watson, P. Z. S. 1893, p. 118.

To this genus we assign *Papilio accius*, Smith & Abbot, which is taken as the type by both Scudder and Watson, *Pamphila bipunctata*, Mab., and a new species described below. *Hesperia hianna*, Scudd., is also included in *Lerema* by Watson, but we have placed it with others under a separate genus, *Atrytonopsis*.

The antennæ are less than half the length of the costa, and have a moderately stout club, terminating in a long crook. The palpi have the third joint short, stout, and bluntly conical. The primaries are somewhat pointed at the apex in the males, blunter in the females; the cell is considerably less than two-thirds the length of the costa; the discocellulars are moderately oblique, the lower one being a little shorter than the upper; the lower radial is slightly depressed at the base; the first branch arises from

about the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are feebly lobed at the anal angle; the discocellulars are faint, except at their points of origin. The body is robust. The middle tibiæ are conspicuously spined, the hind tibiæ have two pairs of spurs. The primaries of the male have a stout, oblique, sinuous, interrupted brand extending from the base of the second median branch to near the submedian nervure.

Lerema is confined to America, the type species having a very wide distribution, the other two being purely tropical. The portion of the brand below the first median branch in each species is broken into two.

1. *Lerema accius*. (Tab. XCIX. fig. 44, ♂.)

Papilio accius, Smith & Abbot, Lep. Ins. Georgia, i. p. 45, t. 23 (♂ ♀)¹.

Lerema accius, Scudd. Rep. Peabody Ac. Sci. iv. p. 82²; Butt. E. U. S. & Canada, ii. p. 1768, t. 17. ff. 3, 7 (♂ ♀)³; Wats. P. Z. S. 1893, p. 118⁴.

Hesperia monoco, Scudd. Proc. Ess. Inst. iii. p. 178⁵.

Hesperia punctella, Grote & Robins. Trans. Am. Ent. Soc. i. p. 1⁶.

Hesperia nortonii, Edw. Trans. Am. Ent. Soc. i. p. 287⁷.

♀. *Telemiades ceramina*, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 69⁸.

♂. *Goniloba parumpunctata*, Herr.-Schäff. loc. cit. p. 76⁹.

Lerema pattenii, Scudd. Rep. Peabody Ac. Sci. iv. p. 82¹⁰.

Alis nitente fuscis, stigmatibus obscuriore, anticis macula parva inter ramos medianos secundum et tertium, tribusque in linea transversa subapicalibus, albidis: subtus ut supra, sed pallidioribus, anticis margine interno angulum analem versus late, et margine externo, dilutioribus; posticis grisescentioribus, margine costali usque ad apicem et fasciis duabus (una transversa ultra cellulam, altera submarginali), haud ad marginem internum extendentibus, rufo-fuscis; corpore et palpis subtus canescentibus.

♀ mari similis, sed anticis maculis duabus discalibus, inferiore majore.

Hab. NORTH AMERICA, Eastern United States³.—MEXICO, Saltillo in Coahuila and San Luis Potosi (*Scudder*³), Durango city (*Becker*), Presidio de Mazatlan (*Forrer*), Lake Chapala (*Richardson*), Acapulco, Tepetlapa, Rincon, Amula, Venta de Zopilote, La Venta, Acaguizotla, Hacienda de la Imagen, and Rio Papagaio, all in Guerrero, Atoyac, Teapa (*H. H. Smith*), Atlixco (*F. D. G.*), Orizaba (*H. J. Elwes*), Valladolid in Yucatan (*Gaumer*); GUATEMALA¹⁰, Volcan de Santa Maria (*Richardson*), San Gerónimo (*Champion*); HONDURAS, Ruatan I. (*Gaumer*); COSTA RICA, Irazu, Caché, San Francisco (*Rogers*); PANAMA, Chiriqui (*Ribbe*), Panama city (*J. J. Walker*).—SOUTH AMERICA to Brazil.

This species was originally described by Smith and Abbot, who figured both sexes, in their work on the 'Lepidopterous Insects of Georgia.' It is a common insect in Mexico, and extends as far south as Brazil. On a careful examination of our very large series of specimens we find a considerable amount of variation, both in the number of spots on the primaries, especially in the males, and also in the marking of the underside. Smith and Abbot's figures represent a very light-coloured and

spotted insect, and we have examples matching these, as well as males with no spots at all, or with the subapical ones only just visible (*L. pattenii*); the latter are usually paler and more uniformly coloured beneath, and between the two extremes we have many intermediates. The immaculate examples, which are all males, are from Yucatan, Ruatan I., Chiriqui, Panama city, Venezuela, and Brazil.

We have seen the types of *T. ceramina*⁸ and *G. parumpunctata*⁹ of Herrich-Schäffer, and also that of *L. pattenii*¹⁰ of Scudder. All our females have the primaries more distinctly spotted than the males.

We have dissected two males—one from Georgia and one from Atoyac, our figure of the genitalia being taken from the latter, see Tab. XCIX. fig. 44.

2. *Lerema bipunctata*. (Tab. XCIX. figg. 45, 46, 47, ♂.)

Pamphila bipunctata, Mab. Le Nat. 1889, p. 174, f. 3¹.

Alis fuscis, stigmatibus obscuriore, anticis punctis duobus aut tribus subapicalibus in linea transversa, eo ad costam proximo parum elongato, albo-hyalinis: subtus ut supra, anticis marginem internum versus pallidioribus, margine externo ad apicem squamis griseis notatis; posticis dimidio interno et fascia ultra cellulam transeunte squamis ferrugineis vestitis, aliter griseo notatis; palpis subtus et corpore pilis griseis ornatis. ♀ mari similis.

Hab. GUATEMALA (*Conradt, in mus. Staudinger*), Dueñas (*Champion*), Chisoy Valley (*F. D. G. & O. S.*); COSTA RICA, San Francisco, Caché, Rio Sucio, Irazu (*Rogers*); PANAMA, Chiriqui (*ex Staudinger*).—VENEZUELA, Merida (*coll. Schaus*).

L. bipunctata is represented in our collection by a fair series of specimens from Guatemala, Costa Rica, and Panama. Dr. Staudinger has lent us the type of *P. bipunctata*, and has also sent us a male under the name of *P. asella*, Herrich-Schäffer. We hesitate, however, to adopt this latter name for our insect, as the description is exceedingly brief, and the locality whence it was derived is not mentioned.

This species is very closely allied to *L. accius*, but differs in being smaller, this being especially noticeable in the females; the subapical spots on the primaries are more elongate towards the costa, the lower one seldom visible in the male on the upperside, the underside, too, of both wings is darker and more irrorated. A male from Dueñas is figured; also the fore wing, to show the brand (Tab. XCIX. fig. 46), and the genitalia, for which latter see Tab. XCIX. fig. 47.

3. *Lerema peneia*, sp. n. (Tab. XCIX. figg. 48, 49, ♂.)

Alis nitente fuscis, stigmatibus nigrescente, anticis maculis duabus ultra eum inter ramos medianos, et duabus minutis indistinctis subapicalibus in linea transversa, ochreis: subtus pallidioribus, anticis maculis ut supra, sed magis distinctis et albescentibus, area mediana obscuriore, angulum analem versus late grisescientioribus, margine costali et apice late, posticisque omnino squamis ochraceis dense vestitis, his fascia curvata indistincta ultra cellulam pallida; corpore subtus canescente.

♀ ignota.

Hab. PANAMA, Chiriqui (*ex Staudinger*).

Our description of this species is taken from a male in our possession, sent us by Dr. Staudinger under the name of *Pamphila actor*, Mabilie. It differs, however, from the *P. actor* = *P. vala*, Mab., referred by us to the genus *Prenes*, in having a conspicuous brand on the primaries, and the spots are not hyaline. *L. peneia* closely resembles *L. accius*, but may be known from it by the primaries having two faint ochreous spots beyond the brand between the first and second and the second and third median branches respectively, and the brand itself is also narrower. From *Chærephon citrus* (Mab.) the present species may be distinguished by its larger size, the moderately long crook to the antennæ, the much more uniformly coloured underside, &c.

MCERIS, gen. nov.

The two small species we refer to this genus, of which we take *Talides striga*, Hübn., as the type, are nearly allied to *Lerema*, having a very similarly shaped brand in the males; but the genitalia in this sex are very different in form, and the primaries, at least in *M. striga*, are somewhat truncated at the tip.

The antennæ are about half the length of the costa, and have an elongate club, terminating in a moderately long crook. The palpi have the third joint short, erect, and bluntly conical. The primaries are somewhat truncated at the apex and have the costa slightly arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one twice the length of the lower, the latter the same length as the third median segment; the lower radial is depressed at the base; the first branch arises from about the middle of the median nervure, the second from close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are faint. The body is moderately robust. The middle tibiæ are conspicuously spined, the hind tibiæ have two pairs of spurs. The primaries have a conspicuous velvety-black, oblique, sinuous, interrupted brand, extending from the base of the second median branch to a little above the middle of the submedian nervure. The genitalia of the males have the harpes terminating in two acuminate widely separated points.

1. *Mæris striga*. (Tab. C. figg. 1, 2, ♂.)

Talides striga, Geyer, in Hübner's Zutr. ex Schmett. iv. p. 32, ff. 739, 740¹.

Alis fuscis, stigmatibus nigrescentibus, anticis costæ dimidio basali squamis ochraceis vestitis: subtus dilutioribus, anticis costa et apice late ochraceis castaneo notatis; posticis (nisi ad marginem internum) quoque castaneo marmoratis, margine costali apicem versus ochraceo notato; palpis subtus pilis flavis tectis.
♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith, Schumann*), Jalapa, Coatepec (*coll. Schaus*); GUATEMALA, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*ex Staudinger*), Bugaba (*Champion*).—SOUTH AMERICA to the Argentine Republic.

We have seen upwards of a dozen specimens of this well-marked species from within our limits, agreeing accurately with the figures in Hübner's work. In one of the Chiriqui insects we notice three small subapical ochreous spots on the costal margin near the apex, another in the cell, and three forming a faint oblique row beyond the brand. We figure the fore wing of a male, to show the brand (Tab. C. fig. 1), also the genitalia, for which latter, see Tab. C. fig. 2.

2. **Mæris hyagnis**, sp. n. (Tab. C. fig. 3, ♂.)

Alis fuscis, stigmatibus nigrescentibus: subtus ut supra, sed anticis angulum analem versus paulo pallidioribus, puncto minuto subapicali, posticis quoque alio ad cellulæ finem, albidis; corpore subtus coloris ejusdem.

Hab. MEXICO, Atoyac (*H. H. Smith*).

Our description is taken from a single worn male, and we have two females from the same locality which may possibly belong to this species; these latter have the outer margins of the wings greyish beneath, otherwise they resemble the other sex. It is very like *Mnasicles hicetaon*, but has a broader brand on the primaries and a shorter and stouter terminal joint to the palpi. The very different coloration of the underside distinguishes it at once from *M. striga*. For the genitalia of the male, see Tab. C. fig. 3.

METRON, gen. nov.

The single small species referred to this genus, *Pamphila chrysogastra*, Butl. (= *P. fasciata*, Möschl., and *Hesperia goza*, Hew.), a widely distributed Tropical-American insect, is an isolated form, differing from most of its allies in the neuration of the wings, and in the shape of the brand on the primaries of the male. The coloration is also peculiar, the secondaries having a broad white fascia beneath, one other species only, amongst the Central-American Pamphilinæ, *Metrocles leucogaster*, coming very near to it in this respect.

The antennæ are half the length of the costa, and have a stout club, terminating in a long crook. The palpi are densely clothed with scales; the third joint is stout, short, and bluntly conical. The primaries are produced at the tip, comparatively short, the costa very slightly arched towards the base; the cell is less than two-thirds the length of the costa; the upper discocellular is long and strongly oblique, the lower one extremely short, the latter barely one-third the length of the third median segment; the lower radial is greatly depressed at the base; the first branch arises from considerably before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are very faint, the lower one very long and strongly oblique. The body is robust. The middle tibiæ are furnished with long spines, and the hind tibiæ have two pairs of

spurs. The primaries of the male have an inconspicuous treble brand: (1) an elongate streak extending along the whole length of the second median segment, and widened towards the base, so as to fill the angle between it and the origin of the first median branch; (2) a short longitudinal streak just below this; (3) a still shorter piece in front of the submedian nervure before the middle. The general shape of the wings is like that of the species of *Cobalus*; the body is comparatively robust; the genitalia of the male are very peculiarly formed.

1. **Metron chrysogaster.** (Tab. C. figg. 4–7, ♂.)

Pamphila chrysogastra, Butl. Trans. Ent. Soc. 1870, p. 506¹.

♀. *Pamphila fasciata*, Möschl. Verh. zool.-bot. Ges. Wien, 1876, p. 335, t. 4. f. 19².

Hesperia goza, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 78 (1877)³.

Alis fuscis, stigmatе concolore, anticis costa aurea, punctis tribus in linea transversa subapicalibus (interdum obsoletis), maculis tribus in linea obliqua, ea in medio elongata, flavidis; posticis area discali indistincte flavo notata: subtus anticis pallidioribus, maculis paginæ superioris albescentioribus et majoribus, regione costali, et apice late, flavo-olivaceo tinctis; posticis fascia lata recta a margine costali per cellulæ finem eunte, marginem internum versus interrupta, albida, striga marginem internum versus, ad angulum analem latiore, fusca, aliter olivaceis; palpis, clava antennarum et abdomine subtus ochraceis; tibiis tarsisque coloris ejusdem.

♀ mari similis.

Hab. MEXICO, Rincon in Guerrero, Atoyac in Vera Cruz (*H. H. Smith*); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Veraguas (*Arcé*).—COLOMBIA¹; VENEZUELA^{1 3}; GUIANA²; AMAZONS; TRINIDAD.

This pretty little species has a wide range, extending from Mexico to the Amazon region. It is very easily recognized by the broad whitish band on the secondaries beneath, and by the form of the brand on the primaries.

We have seen sixteen examples, ten of which are from within our limits. We figure a male specimen from Bugaba; also the fore wing, to show the position of the brand (Tab. C. fig. 6), and the genitalia, for which latter, see Tab. C. fig. 7.

METROCLES, gen. nov.

The single species from Central America placed here is extremely like *Metron chrysogaster* in general coloration, but differs from it in having a conspicuous and very dissimilarly shaped brand on the primaries in the male, as well as in the neuration and other particulars. Unfortunately, one specimen only has been seen, and that not our own, so we are unable to figure the genitalia and other points of structure.

The antennæ are rather more than half the length of the costa, and have a stout club, terminating in a long crook. (The palpi are broken off.) The primaries are moderately produced, somewhat blunt at the tip, and arched on the costa towards the base; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one more than twice the length of the lower; the third median

segment is very short; the lower radial is depressed at the base; the first branch arises from about the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are very faint. The body is robust. The middle tibiæ are without spines; the hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous, rather broad, curved, oblique, interrupted brand extending from the base of the second median branch to about the middle of the submedian nervure.

1. ***Metrocles leucogaster***, sp. n. (Tab. C. figg. 8, 9, ♂.)

Alis fuscis, stigmat paulo obscuriore, anticis maculis tribus in linea obliqua infra et ultra cellulam, infima inter ramos medianos primum et secundum maxima, tertia fere obsoleta, omnibus hyalinis; posticis area discali albescente, pilis quibusdam basin versus flavo-viridibus: subtus rubescentioribus, anticis maculis ut supra, sed majoribus, plaga supra venam submedianam alba; posticis fascia recta a costa per cellulam transeunte (marginem internum versus interrupta) alba, ochraceo marginata; ciliis ad angulum analem posticarum albidis; palpis subtus ochraceis; abdomine subtus albo, ochraceo-marginato.

♀ ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

We have seen only a single male specimen of this species from Dr. Staudinger's collection. *M. leucogaster* resembles *Metron chrysogaster*, and, like it, has a broad white transverse band on the secondaries beneath; but the spots on the upperside of the primaries are white, and the brand is very differently shaped, the insect approaching *Lerema* and *Mæris* in this respect.

PAPIAS, gen. nov.

We take as the type of this genus *Hesperia infuscata*, Plötz (= *Pamphila integra*, Mab.), and associate with it three other species from our region. They are all of a uniform fuscous colour. Except in the form of the genitalia of the males, they scarcely differ from *Cobalus*, in this respect approaching much more nearly to *Lerema*, the last-mentioned genus, however, has a conspicuous brand in the males.

The antennæ are about half the length of the costa and have an elongate club, terminating in a long crook. The third joint of the palpi is very short and bluntly conical. The primaries are somewhat produced at the apex, and have the costa slightly arched at the base; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one nearly twice as long as the lower, the latter being about the same length as the third median segment; the lower radial is depressed at the base; the first branch arises slightly before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are faint. The body is moderately robust. The middle tibiæ are spined and the hind tibiæ have two pairs of spurs. The primaries (Tab. C. fig. 10) are without trace of a brand in the male.

The species are so much alike that they can only be separated for certain by the structure of the genitalia of the males; four specimens of each have been dissected.

1. **Papias infuscatus.** (Tab. C. figg. 10, 11, ♂.)

Hesperia infuscata, Plötz, Stett. ent. Zeit. 1882, p. 315¹.

Carystus infuscatus, Möschl. Verh. zool.-bot. Ges. Wien, 1882, p. 325².

Pamphila integra, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxix³.

Alis fuscis, unicoloribus: subtus ut supra, sed dilutioribus, anticis area mediana a basi obscurioribus, ad angulum analem pallidioribus; palpis subtus pilis flavis et fuscis intermixtis vestitis.

♀ mari similis.

Hab. MEXICO, Jalapa, Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Las Nubes (*O. S.*), Panima, San Gerónimo (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*)³; COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—COLOMBIA; VENEZUELA²; AMAZONS; BRAZIL¹.

We are indebted to Dr. Staudinger for the loan of a male specimen identified by Möschler as *Hesperia infuscata*, Plötz. It is the commonest of several extremely closely allied Central-American species, the males of which are without a brand on the primaries. In this sex the fore wings are more pointed than in many of its congeners. Dr. Staudinger has also sent us specimens of the same species under the names of *Cobalus umber* of Herrich-Schäffer and *Pamphila integra* of Mabille.

We have dissected four males, including one from Pará, and they show no difference in the form of their genitalia, for which see Tab. C. fig. 11.

2. **Papias dictys**, sp. n. (Tab. C. figg. 12, 13, ♂.)

Alis brunneo-fuscis, puncto minutissimo indistincto subapicali albido (interdum obsoleto): subtus rufescentioribus, anticis angulum analem versus pallidioribus, area mediana obscuriore, posticis punctis tribus fere obsoletis in area discali quoque albidis; palpis subtus pilis flavis et fuscis intermixtis vestitis.

♀ mari similis, sed punctis subtus magis distinctis.

Hab. MEXICO, Jalapa, Coatepec (*coll. Schaus*), Atoyac (*H. H. Smith*); GUATEMALA, Chisoy Valley (*F. D. G. & O. S.*), Panima and San Gerónimo in Vera Paz, Zapote (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).

Very like *P. infuscatus*, but smaller and much redder beneath, and usually with a minute whitish subapical spot on the primaries, the primaries less pointed at the tip in the male. The genitalia in this sex are also differently formed, as will be seen by a reference to our Plate.

We have dissected four males from different localities, and these show no differences whatever in their structure, see Tab. C. fig. 13.

Our series contains twelve specimens, half of which are from San Gerónimo. Dr. Staudinger has also sent us two examples from Chiriqui for examination.

3. *Papias microsema*, sp. n. (Tab. C. figg. 14, 15, ♂.)

Alis fuscis, unicoloribus: subtus pallidioribus et rufescentioribus, anticis angulum analem versus dilutioribus, punctis duobus, uno inter ramos medianos primum et secundum, altero ultra id, uno quoque subapicali, posticis quatuor in serie curvata ultra cellulam (omnibus frequenter absentibus), albidis; palpis subtus pilis ochraceis et fuscis intermixtis vestitis.

♀ mari similis.

Hab. MEXICO, Teapa (*H. H. Smith*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—BRAZIL, Chapada.

Dr. Staudinger has lent us three specimens of this insect for examination, two under the name of *Pamphila microsema*, Mabilie, and one under that of *P. phæomelas*, Hübner, and we possess others from Mexico, Costa Rica, and Brazil, apparently agreeing with them.

We cannot find that Mabilie's name has been published, and the identification of Hübner's species is very doubtful.

P. microsema is exceedingly like *P. phainis*, but has differently formed genitalia in the males. The spots on the underside of the wings are quite distinct in two of the three specimens seen from Chiriqui, which we are unable, unfortunately, to dissect; they are absent or barely indicated in the others. We have dissected several examples from Teapa and Chapada, and we find they agree perfectly, see Tab. C. fig. 15. A Chiriqui specimen of the insect is also figured.

4. *Papias phainis*, sp. n. (Tab. C. fig. 16, ♂.)

Alis nigro-fuscis, unicoloribus: subtus ut supra, sed rubescentioribus, anticis angulum analem versus pallidioribus; palpis pilis fuscis et aureis intermixtis vestitis; ciliis fuscis.

♀ mari similis.

Hab. MEXICO, Atoyac (*H. H. Smith*), Misantla (*F. D. G.*); GUATEMALA, San Gerónimo (*Champion*); COSTA RICA, Caché (*Rogers*).

We have about a dozen examples of this species, which can only be separated from the immaculate form of *P. microsema* by the structure of the genitalia of the male (see Tab. C. fig. 16). *P. phainis* is also extremely like *Pamphila simplicissima*, H.-S., which is here referred to a different genus, but may be distinguished from that insect by the stouter terminal joint to the palpi and by its larger size.

MNASINOUS, gen. nov.

The single species from Central America that we refer to this genus is of a uniform nigro-fuscous colour, like those of *Papias*, *Methion*, *Methionopsis*, and other Tropical-American genera of Pamphilinæ. It appears to be an isolated form, differing in its male-characters from all its allies. The brand is not unlike that of certain species of *Eutychide* (*E. asema*), but the lower arm of the >-piece is absent, and the upper arm is much more elongate.

The antennæ are more than half the length of the costa, and have an elongate club, terminating in a long crook. (The palpi are missing.) The primaries are moderately elongate, blunt at the tip, and arched on the costa towards the base; the cell is a little less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one more than twice the length of the lower, the latter equal to the third median segment; the lower radial is strongly depressed at the base; the first branch arises from the middle of the median nervure, the second near the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are long and faint. The body is rather slender. The middle tibiæ are without spines; the hind tibiæ have two pairs of spines. The primaries of the male (Tab. C. fig. 18) have an inconspicuous treble brand, which is hidden by the coarser scales: (1) a very slender streak extending along the whole length of the second median segment to its base, and there filling the angle between it and the first median branch; (2) a short longitudinal streak just below this; (3) a longer one above the submedian nervure towards the base.

The genitalia of the male are not unlike those of some of the species of the genus *Rhinthon* (*R. megalops*), in which genus the primaries have the brand formed of a single streak along the upper edge of the submedian nervure.

1. **Mnasinous patage**, sp. n. (Tab. C. figg. 17, 18, 19, ♂.)

Alis nigro-fuscis, stigmatæ concolore: subtus dilutioribus, anticis margine interno ad angulum analem pallidiore, costa, apice et posticis (nisi margine interno) obscure rufo tinctis.

♀ mari similis, sed pallidiore.

Hab. MEXICO, Orizaba (*F. D. G. & H. J. Elwes*); PANAMA, Chiriqui (*mus. Staudinger*).

Mr. Elwes and myself captured a pair of this insect at Orizaba, and there is a male of it from Chiriqui in Dr. Staudinger's collection. The form of the brand is exactly similar in the two males, this character separating *M. patage* at once from the species here referred to *Eutychide umber* (H.-S.). For the genitalia of the male, see Tab. C. fig. 19.

METISCUS, gen. nov.

The Tropical-American species referred to this genus is one of the numerous forms allied to *Cobalus*, but differs from it in having the primaries conspicuously branded in the male, this brand again being peculiar in shape and position. The genitalia in this sex are also very different from those of any of the allied insects known to us. In the uniform fuscous coloration of the wings, *M. atheas* does not differ from many other American Pamphilinæ. The brand is not unlike that of the species of *Lerema*, except that the lower piece is absent.

The antennæ are about half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is very short and almost

concealed. The primaries are elongate, blunt at the tip, and arched on the costa at the base; the cell is nearly two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one about twice as long as the lower, the latter equal to the third median segment; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second shortly before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are faint. The body is moderately stout. The middle tibiæ are spined, and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. C. fig. 20) have a conspicuous, oblique, curved brand, extending from the base of the second median branch to the first at some distance from its origin, beneath which is a short oblique piece.

1. **Metiscus atheas**, sp. n. (Tab. C. figg. 20, 21, ♂.)

Alis fuscis, unicoloribus, anticis stigmatè angusto curvato coloris ejusdem: subtus ut supra, sed anticis ad angulum analem pallidioribus, ciliis externe griseis.

♀ mari similis.

Hab. MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Coban (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*).—AMAZONS; TRINIDAD.

Of this species we have several examples of both sexes from Teapa, and a male from Trinidad, and Dr. Staudinger has lent us a male of it from S. Paulo, on the Amazons; all those from Guatemala, Costa Rica, and Panama are females, so that their determination is not quite certain. We had at first identified it as *Hesperia immaculata*, Hew., but on examining the specimens so labelled in the Hewitson collection in the British Museum we find that the males have a differently shaped brand.

We also possess a female, from the Kaden collection, labelled *Celaenorhinus phæomelas*, Hübn., but this identification is very doubtful, our insect being much larger. The females are so like those of *Papias infuscatus* that they are scarcely distinguishable, except perhaps by their having a shorter and less conspicuous terminal joint to the palpi. Our descriptions and dissections have been made from a Teapa specimen. For the genitalia of the male, see Tab. C. fig. 21.

METHION, gen. nov.

The Central-American species placed by us in this genus agrees very nearly with *Methionopsis* in the neuration of the primaries, and it is of a similar uniform nigro-fuscous colour above; but the terminal joint of the palpi is very short, the primaries are without trace of a brand in the male, and the genitalia in this sex are very peculiar in structure, the tegumen being formed by a single long slender piece. *M. melas* is not unlike *Achlyodes calavius*, G. & S.*, of the group Hesperiinæ, but may be known

* This species (*antea*, p. 395) was doubtfully referred by us to *Achlyodes*; we have since seen a specimen of it from Costa Rica in Dr. Staudinger's collection.

from it by the oblique (not transverse) discocellulars of both wings, the slightly depressed lower radial nervure of the primaries, &c. The males have a fringe of long hairs along the upper edge of the abdominal fold of the secondaries.

The antennæ are rather more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint is very short and almost concealed. The primaries (Tab. C. fig. 22) are moderately elongate, arched on the costa, and blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, equal in length, the lower one being considerably longer than the third median segment; the lower radial is very slightly depressed at the base; the first branch arises from about the middle of the median nervure, the second from a little distance before the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are oblique, long, and very faint. The body is slender. The middle tibiæ are not spined, the hind tibiæ have two pairs of spurs.

1. **Methion melas**, sp. n. (Tab. C. figg. 22, 23, ♂.)

Alis nigro-fuscis, unicoloribus: subtus rufescentioribus, anticis margine interno angulum analem versus pallidiori; palpis pilis aureis et fuscis intermixtis.

♀ mari similis.

Hab. GUATEMALA, Dueñas (*F. D. G. & O. S., Champion*), San Gerónimo, Panima (*Champion*).

Eight specimens of this species are before us. It perhaps most nearly resembles *Papias dictys*, but the wings are darker above, and there is no trace of the minute spots on either their upper or lower surface, and the hairs on the underside of the palpi and body are darker; the genitalia of the male, too, are quite differently formed. *M. melas* is also very like *Mnasinous patage*, but it is considerably smaller and differs in other respects. For the genitalia of the male, see Tab. C. fig. 23.

THARGELLA, gen. nov.

The single obscurely coloured species referred to this genus differs from all the other American Pamphilinæ known to us in the very strongly arched costa. The primaries are comparatively short and broad, with a short cell, the discocellulars oblique, and the lower radial depressed at the base. The neuration is very like that of the genera *Methion*, *Methionopsis*, and *Epeus* (the last two of these being branded in the male), except that the first median branch arises from nearer the lower angle of the cell. Amongst the Hesperiinæ it closely approaches some of the species of *Achlyodes* (*A. calavius*, &c.), from which the oblique discocellulars and the depressed lower radial nervure separate it. The antennæ are almost as long as in the genus *Falga*.

The antennæ are about two-thirds the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is short. The

primaries are comparatively short and broad, blunt at the tip, with the costa strongly arched from the base to the apex, and the outer margin slightly rounded; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one longer than the lower, the latter twice the length of the third median segment, which is exceedingly short; the lower radial is distinctly depressed at the base; the first branch arises a little beyond the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are long and faint, the lower one oblique, the upper one transverse. The body is moderately stout, the head large. The middle tibiæ are without spines, and the hind tibiæ have two pairs of spurs. There are no secondary sexual characters visible on the primaries of the male (Tab. C. fig. 24), but the secondaries have a fringe of long hairs along the inner edge of the abdominal fold in this sex.

1. **Thargella fuliginosa**, sp. n. (Tab. C. figg. 24, 25, ♂.)

Alis nigro-fuscis, unicoloribus: subtus rufo-fuscis, anticis ad angulum analem late pallidioribus; palpis aureis. ♀ ignota.

Hab. NICARAGUA, Chontales (*Janson*).—COLOMBIA, Cacagualito (*H. H. Smith, in Mus. Pittsburg*); BRITISH GUIANA; AMAZONS, Santarem.

We have seen four males of this species: three worn examples in our own collection and one, from Colombia, in perfect condition, belonging to the Pittsburg Museum. The genitalia of two of them have been dissected, and they agree perfectly. Our figures are taken from the Chontales specimen, the genitalia being shown on Tab. C. fig. 25.

MNASITHEUS, gen. nov.

The two species we place under this generic name are both of very small size, and of an almost uniform fuscous colour above and beneath, with the cilia paler. We take *M. cephis* as the type, this having an inconspicuous treble brand on the primaries of the male; the second species is *Pamphila simplicissima*, H.-S. (= *Cobalus nigritulus*, Mab.): the first-mentioned insect is only known to us at present from Mexico and Guatemala; the other is a widely distributed and common Tropical-American form. The genitalia of the males of the two species are very similar.

The antennæ are a little more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is short and conical (longer in *M. simplicissimus*). The primaries are somewhat pointed at the tip, and have the costa slightly arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about twice the length of the lower, the latter slightly longer than the third median segment; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second from close to the lower angle of the cell. The body is

rather slender. The middle tibiæ are without spines, and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. C. fig. 26) (except in *M. simplicissimus*, fig. 28) have an inconspicuous treble brand completely covered by the coarser scales: (1) a very short longitudinal streak just above the first median branch at some distance from its base; (2) a much longer streak immediately below this; (3) a still longer streak along the upper edge of the submedian nervure at the middle.

1. ***Mnasitheus cephis***, sp. n. (Tab. C. figg. 26, 27, ♂.)

Alis nigro-fuscis, unicoloribus, stigmatè concolore: subtus ut supra, sed purpureo tinctis.
♀ mari similis.

Hab. MEXICO, Misantla (*F. D. G.*); GUATEMALA, Zapote (*Champion*).

Very like *Mnasalcas uniformis* (Butler), but smaller, and with the brand very differently formed. Of this obscure species we have at present only detected four specimens. The brand on the primaries and the longer terminal joint of the palpi, as well as the form of the tegumen, separate it from *M. simplicissimus*. A male from each locality has been dissected. For the genitalia, see Tab. C. fig. 27.

2. ***Mnasitheus simplicissimus***. (Tab. C. figg. 28, 29, ♂.)

Pamphila simplicissima, Herr.-Schäff. Corresp.-Blatt Regensb. 1870, p. 159¹.

Cobalus nigrifulus, Mab. Compt. Rend. Soc. Ent. Belg. xxvii. p. lxii².

Alis nigro-fuscis, unicoloribus: subtus ut supra, palpis pilis fuscis et aureis intermixtis vestitis; ciliis obscure griseis.

♀ mari similis.

Hab. MEXICO, Jalapa (*M. Trujillo*), Coatepec (*coll. Schaus*), Orizaba (*F. D. G. & H. J. Elwes*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo, Zapote (*Champion*); HONDURAS (*Dyson*), San Pedro (*Whitely*); PANAMA², Chiriqui (*ex Staudinger*).—VENEZUELA¹, Puerto Cabello; BRAZIL².

This is one of several very closely allied species which have no brand on the primaries in the male. It is chiefly distinguished by the obscurely coloured fringe, the golden hairs on the underside of the palpi, and the form of the male genitalia, for which see Tab. C. fig. 29. We have dissected five Mexican examples, all of which are precisely alike. The females are scarcely separable from those of several of the allied forms.

We possess a male from Venezuela, which we believe to be Herrich-Schäffer's type, and Mr. H. H. Smith has supplied us with a very long series from Atoyac and Teapa in Eastern Mexico. This is one of two species from Chiriqui sent us by Dr. Staudinger under the MS. name of *Pamphila modesta*, but this term we have applied to the other insect*.

* *Cobalus chrysophrys*, Mab., from Colombia, the type of which, a male, has been lent us by Dr. Staudinger, is also very like *M. simplicissimus*; but it has longer antennæ, a paler fringe, and an inconspicuous double brand formed of a long streak above the submedian nervure and another below the first median branch.

MNASALCAS, gen. nov.

Pamphila uniformis, Butl., from Costa Rica, described from a single female example, has a conspicuous and very peculiarly shaped brand on the primaries of the male, and as it also differs in some other particulars from the species of all the allied genera we are compelled to place it by itself.

The antennæ are about two-thirds the length of the costa, and have a rather stout club, terminating in a long crook. The third joint of the palpi is very short, conical, and almost concealed. The primaries are moderately elongate, blunt at the tip, and have the costa arched at the base; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one being fully three times the length of the lower, the latter about equal to the third median segment, which is very short; the lower radial is considerably depressed at the base; the first branch arises a little beyond the middle of the median nervure, the second almost at the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are faint. The body is slender. The middle tibiæ are without spines, and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. C. fig. 30) have the brand formed of three portions: (1) a longitudinal streak extending along the second median segment to beyond the base of the second branch and filling the angle between it and the first branch; (2) a short longitudinal streak immediately below this; (3) a triangular piece extending forwards from the middle of the submedian nervure.

1. *Mnasalcas uniformis*. (Tab. C. figg. 30, 31, ♂.)

Pamphila uniformis, Butl. Cist. Ent. i. p. 113¹.

Alis nigro-fuscis, unicoloribus: subtus brunnescentioribus, anticis margine interno pallidioribus; palpis pilis fuscis.

♀ mari similis.

Hab. COSTA RICA (*Van Patten*¹), Caché, Irazu (*Rogers*).

Dr. Butler's description of this insect was taken from a very worn specimen in Van Patten's Costa-Rican collection, which is now in our possession, and with this we associate four males from the same country. *M. uniformis* closely resembles numerous other Tropical-American species, but the form of the brand in the male will distinguish it from all its allies. For the genitalia of the male, see Tab. C. fig. 31.

MASTOR, gen. nov.

The species we refer to this genus have the primaries comparatively short, and rather blunt at the tip, approaching in this respect *Poanes* and *Poanopsis*, from which they differ in having a more slender club and a longer crook to the antennæ, the primaries less rounded at the apex, &c. In *M. anubis*, which we take as the type, and *M. bellus* (W. H. Edwards) there is a slender, interrupted, linear, oblique brand on the primaries

in the male, these two insects also having the genitalia very similarly formed in this sex; but in *M. perigenes*, which we provisionally place here, the primaries are without a brand, the neurulation is slightly different, and the genitalia are dissimilar in form. All three of them have the wings of a uniform fuscous colour above, with the cilia more or less pale. The antennæ have a somewhat stouter antennal club than in most of the similarly coloured allied insects.

The antennæ are about half the length of the costa, and have an elongate, moderately stout club, terminating in a rather long crook. The third joint of the palpi is short and bluntly conical. The primaries have the costa arched at the base; the cell is nearly two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one twice the length of the lower, the latter a little shorter than the third median segment; the lower radial is strongly depressed at the base; the first branch arises slightly beyond the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are very faint. The body is rather slender. The middle tibiæ are conspicuously spined; the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. C. fig. 34) have a narrow oblique brand, extending from the base of the second median branch to the middle of the submedian nervure, this being much interrupted in *M. anubis* and absent in *M. perigenes*.

a. Primaries of the male with a faint brand.

1. **Mastor anubis**, sp. n. (Tab. C. figg. 32-35, ♂.)

Alis brunneo-fuscis, unicoloribus, stigmatè concolore: subtus ut supra, palpis pilis aureis et fuscis intermixtis vestitis; antennis subtus ad clavæ basin et ciliis externe ochraceis.

♀ mari similis.

Hab. MEXICO, Omilteme in Guerrero (*H. H. Smith*), Orizaba (*H. J. Elwes*), Jalapa (*coll. Schaus*).

Our collection contains eighteen specimens of this obscure species. In some examples a curved row of small spots is distinctly visible on the underside of the secondaries, these being formed by scattered ochreous scales. *M. anubis* closely resembles *Cobalus chrysophrys*, Mab., from Colombia, from which it differs in its larger size, shorter antennæ, and the very differently shaped brand in the male. We also have an imperfect example from Costa Rica that may belong here.

For the genitalia of the male, see Tab. C. fig. 35.

2. **Mastor bellus**. (Tab. C. fig. 36, ♂.)

Hesperia bellus, W. H. Edwards, Papilio, iv. p. 57 (♂) (1884)¹.

Pamphila bellus, Skinner, Ent. News, xi. p. 414, t. 2. ff. 11, 12².

Alis brunneo-fuscis, stigmatè concolore: subtus ut supra, capite et palpis pilis ochreis vestitis; ciliis (nisi ad apicem posticarum) ochraceis.

♀ mari similis.

Hab. NORTH AMERICA, Arizona ¹ ².—MEXICO, Milpas in Durango (*Forrer*), Las Vigas (*coll. Schaus*).

Mr. Forrer sent us a worn pair only of this distinct species from Milpas in Durango; Mr. Schaus's collection, however, contains three males from Las Vigas in good condition. It may at once be distinguished from all the allied forms by its conspicuous orange hairs on the head and palpi, and the ochreous fringe to both wings.

For the genitalia of the male, see Tab. C. fig. 36.

b. Primaries of the male without a brand.

3. ***Mastor perigenes***, sp. n. (Tab. C. figg. 37, 38, ♂.)

Alis nitente fuscis, unicoloribus: subtus anticis obscure fuscis, costa et apice sordide ochraceis; posticis coloris ejusdem, venis omnibus pallidioribus, strigis duabus longitudinalibus a basi, una ad marginem externum juxta apicem, altera minus distincta angulo anali propiore (interdum absente), albidis, plica ad marginem internum fusca; corpore et palpis subtus canescentibus; ciliis griseis.

Hab. MEXICO, Rincon in Guerrero (*H. H. Smith*).

Two males are all we know of this insect, which may be easily identified from its allies by the longitudinal whitish streaks on the secondaries beneath. In one example the inner streak is absent. It has no brand on the primaries. *M. perigenes* closely resembles *Thymelicus bicolor*, Mabille, which we take as the type of another genus, but has a shorter apical joint to the palpi and the underside of the secondaries is differently coloured. For the genitalia of the male, see Tab. C. fig. 38.

MNASILUS, gen. nov.

The single species referred to this genus is widely distributed in Tropical America. This insect is closely related to *Megistias*, but differs from it in having a conspicuous pencil of hairs on the primaries in the male, the genitalia also being peculiarly formed.

The antennæ are half the length of the costa, and have a rather stout club, terminating in a long crook. The third joint of the palpi is very short, stout, and bluntly conical. The primaries are slightly produced at the tip, the apex blunt, the costa very feebly arched towards the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one slightly longer than the lower, the latter being of the same length as the third median segment; the lower radial is slightly depressed at the base; the first branch arises from the middle of the median nervure, the second a little before the lower angle of the cell. The secondaries are feebly produced at the anal angle; the discocellulars are oblique and very faint. The body is rather slender. The middle tibiæ are spined; the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. C. fig. 41) have a conspicuous pencil of long hairs just below the submedian nervure before the middle, but there is no brand.

1. **Mnasilus penicillatus**, sp. n. (Tab. C. figg. 39-42, ♂.)

Alis fuscis, squamis ochraceis sparsim tectis; anticis maculis serie obliqua infra et ultra cellulam, una submediana elongata, aliis minutis apicem versus, omnibus indistinctis: subtus pallidioribus, maculis ut supra, anticis dimidio interiore obscuro, posticis interdum maculis minutis quinque aut sex linea curvata subapicalibus. ♀ mari similis.

Hab. MEXICO, San Blas in Jalisco (*G. Mathew*), Frontera, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo (*O. S. & F. D. G., Champion*); PANAMA, Chiriqui (*ex Staudinger*).—SOUTH AMERICA, Lower Amazons to Brazil.

We possess a long series of this species, both from Central and South America, all males but one.

M. penicillatus very closely resembles *Pamphila epiberus*, Mabilie, which we place in the genus *Megistias*, and has a similar geographical distribution; but it may at once be distinguished by the pencil of hairs on the primaries in the male, as well as by the very differently formed genitalia in this sex. Five males from widely separated localities have been dissected, see Tab. C. fig. 42.

VEHILIUS, gen. nov.

Cobalus illudens, Mab., is taken as the type of this genus, which also includes *Apaustus venosus*, Plötz; the first mentioned is a common Central-American form and the other is widely distributed in the Neotropical region. These two insects are very like some of the species of *Megistias* in general appearance, except that they have the nervures of the secondaries pale beneath; the structure of the genitalia of the males, however, is so different that we think it desirable to separate them. We have also several unnamed forms from South America that probably belong here.

The antennæ are a little more than half the length of the costa, and have a moderately long club, terminating in a long crook. The third joint of the palpi is short and conical. The primaries are moderately long, somewhat pointed at the tip, and have the costa arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about twice as long as the lower, the latter being of the same length as the third median segment; the first branch arises from the middle of the median nervure, the second a little before the lower angle of the cell. The secondaries are distinctly produced at the anal angle; the discocellulars are faint. The body is rather slender. The middle tibiæ are furnished with long spines, the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. C. fig. 45) are without trace of a brand.

1. **Vehilius illudens**. (Tab. C. figg. 43-46, ♂.)

Cobalus illudens, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. lxxxiii¹.

Alis fuscis, punctis duobus inter ramos medianos ad cellulæ finem, exteriori minore, duobus aut tribus minutissimis in linea transversa subapicalibus (interdum obsoletis), ochraceis; posticis area discali

obscure fulvis: subtus anticis (nisi area mediana) pallidioribus, punctis ut supra, ramis subcostalibus, et discoidalibus ad marginem externum, sordide ochraceis; posticis area interiore et venis omnibus coloris ejusdem, ad basin et marginem exteriorem obscuris; palpis quoque subtus pallide ochraceis.

♀ mari similis.

Hab. MEXICO, Misantla (*F. D. G.*), Coatepec (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*), Orizaba (*H. J. Elwes*); GUATEMALA, Motagua valley, Choctum (*F. D. G. & O. S.*), San Gerónimo and Panima (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA Rica, San Francisco, Caché (*Rogers*); PANAMA, Chiriqui (*coll. Staudinger*¹), Volcan de Chiriqui (*Champion*), Lion Hill (*M. Leannan*).—COLOMBIA.

Dr. Staudinger has kindly lent us the type of this species. It is a common insect in Central America, whence we possess a very long series. *V. illudens* is closely allied to *V. venosus* (Plötz), but differs from it in having fewer spots on the upperside of the primaries, and the disk of the secondaries without spots above and pale beneath. Our figures are taken from Atoyac specimens. For the genitalia of the male, see Tab. C. fig. 46.

2. *Vehilius venosus*. (Tab. C. figg. 47, 48, 49, ♂.)

Apaustus venosus, Plötz, Stett. ent. Zeit. 1884, p. 160¹.

Alis fuscis, anticis maculis tribus in linea obliqua infra et ultra cellulam, ea in medio maxima, una minuta subcostali, punctis duobus (aut tribus) in linea transversa subapicalibus, omnibus hyalinis; posticis maculis tribus elongatis in linea transversa ultra cellulam flavidis: subtus paulo dilutioribus, anticis apicem versus et posticis totis venis pallide flavis striatis, linea maculari curvata apicem versus inter venas albida.

♀ mari similis.

Hab. PANAMA, Chiriqui (*coll. Staudinger*).—SOUTH AMERICA¹ to Brazil.

Dr. Staudinger has kindly lent us a single example from Chiriqui of this species, which agrees well with a long series from South America in our collection. We have also seen specimens of it labelled *Papilio saturnus*, Fabr., and *P. pertinax*, Cram., but we do not think these names are correctly applied. For the genitalia of the male, see Tab. C. fig. 49.

MEGISTIAS, gen. nov.

Under this genus we place numerous American species, all of small size. They approach *Lerodea* on the one hand, and *Cobalus* on the other, differing from the first-mentioned in having longer antennæ, with a more slender club, and also the primaries blunter at the tip, and from the latter in having the body more slender, the primaries less pointed at the apex, and the secondaries less produced at the anal angle. The males are without trace of a brand on the primaries. *Hesperia tripunctata*, Latr. (= *Pamphila obsoleta*, Möschl.), is taken as the type, and *H. fusca*, Grote and Robins., also belongs here.

The antennæ are about half the length of the costa, and have a moderately long club, terminating in a long crook. The third joint of the palpi is short and conical. The primaries are moderately long, blunt at the tip, and arched at the base; the cell is much less than two-thirds the length of the costa; the discocellulars are oblique, the upper one much longer than the lower, the latter about as long as the third median segment; the lower radial is depressed at the base; the first branch arises about the middle of the median nervure, the second a little before the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are faint. The body is rather slender. The middle tibiæ are spined (except in *M. epiberus* and possibly in one or two others) and the hind tibiæ have two pairs of spurs.

There is a good deal of divergence in the structure of the genitalia of the males of the species we refer to this genus, as will be seen by our Plate.

a. Primaries immaculate, or with very indistinct spots.

1. **Megistias tripunctatus.** (Tab. CI. figg. 1, 2, 3, ♂.)

Hesperia tripunctata, Latr. Enc. Méth. ix. p. 752 ¹.

Pamphila obsoleta, Möschl. Verh. zool.-bot. Ges. Wien, xxviii. p. 215 ².

Alis fuscis, anticis punctis duobus inter ramos medianos ad cellulæ finem, tribus in linea transversa subapicalibus, omnibus indistinctis (interdum obsoletis): subtus pallidioribus, marginibus externis linea angusta obscura limbatis, punctis ut supra; posticis squamis griseis vestitis, area discali maculis serie transversa irregulari curvata nigro-fuscis; palpis et abdomine subtus albidis.

♀ mari similis.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); PANAMA, Chiriqui (*Ribbé*).—COLOMBIA ²; VENEZUELA; AMAZONS; BRAZIL ¹.

Mr. Smith procured for us a long series of this insect from Atoyac, agreeing well with others from more southern localities in our collection. Latreille's brief description seems to leave but little doubt that the above name is applicable to the present species, which may be distinguished from all its allies by the dark discal spots on the underside of the secondaries. There is a certain amount of variation in the number of the spots, some examples having as few as three, others five or six, and this appears to be independent of locality. We have seen Möschler's type of *P. obsoleta*, from Colombia, which in no way differs from the Central-American insect. Our figures are taken from Atoyac examples. For the genitalia of the male (three specimens of which have been dissected, from Mexico and Brazil), see Tab. CI. fig. 3.

2. **Megistias jera**, sp. n. (Tab. CI. figg. 4, 5, ♂.)

Alis fuscis, anticis puncto inter ramos medianos secundum et tertium ad cellulæ finem, tribus in linea transversa subapicalibus (interdum obsoletis), omnibus minutis, albidis: subtus ut supra, anticis ad angulum analem pallidioribus; posticis squamis schistaceis vestitis, duas fascias transversas obscuras apicem versus formantibus; palpis et corpore subtus albidis; antennis plus minusve albo-annulatis.

♀ mari similis.

Hab. MEXICO, Venta de Zopilote, Tierra Colorada, Chilpancingo, Dos Arroyos, Rincon, Rio Papagaio, all in Guerrero (*H. H. Smith*).

This species is confined, so far as we know, to Western Mexico, whence Mr. Smith has sent us fourteen specimens. *M. jera* closely resembles *M. isus*, but has the primaries less pointed at the apex, the spots are less distinct, and the male genitalia are differently formed: see Tab. CI. fig. 5.

3. *Megistias labdacus*, sp. n. (Tab. CI. figg. 6, 7, ♂.)

Alis nitente fuscis, punctis duobus indistinctis inter ramos medianos ad cellulæ finem, tribus in linea transversa subapicalibus (interdum obsoletis), albidis: subtus pallidioribus, anticis maculis ut supra, ad basin et in area mediana paulo obscurioribus; posticis squamis griseis sparsim tectis, maculis indistinctis serie curvata apicem versus coloris ejusdem; palpis et corpore subtus albidis.

♀ mari similis, sed punctis forsitan magis obviis.

Hab. MEXICO, Dos Arroyos, Chilpancingo, Tierra Colorada, Rincon, Tepetlapa, and Acaguizotla, all in Guerrero, Cuernavaca, Atoyac (*H. H. Smith*), Orizaba (*H. J. Elwes*), Coatepec (*coll. Schaus*); GUATEMALA, San Gerónimo (*F. D. G. & O. S., Champion*), Dueñas (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, San Francisco (*Rogers*).

Our collection contains a good series of this insect, chiefly from Western Mexico; we have also two specimens in bad condition—one from Panama, the other from Chapada, Brazil—which possibly belong here. It is a very close ally of the North-American *Hesperia fusca*, Grote and Robins., a species referred to *Lerodea* by Scudder, but differs in having the primaries faintly spotted above and beneath; the genitalia of the males (three of which, from Mexico, Guatemala, and Brazil, have been dissected) are very similarly formed in the two species: for those of *M. labdacus*, see Tab. CI. fig. 7.

4. *Megistias œbasus*, sp. n. (Tab. CI. fig. 8, ♂.)

Alis fuscis, unicoloribus: subtus anticis ut supra, sed pallidioribus, costa, apice, posticisque area basali purpureo-griseo marmoratis; ciliis pallidis, indistincte fusco maculatis; palpis et corpore subtus pilis griseis vestitis.

♀ ignota.

Hab. COSTA RICA, Caché (*Rogers*).

Mr. Rogers procured a single male example of this distinct species in Costa Rica, the only one we have seen. It is very different from anything else known to us, and may readily be recognized by the purple-grey mottling of the costa and apex of the primaries and of the whole area of the secondaries, these latter wings being darker towards their outer margin. As our specimen is unique, we have not ventured to dissect it.

b. Primaries with minute hyaline spots.

5. **Megistias isus**, sp. n. (Tab. CI. figg. 9, 10, 11, ♂.)

Alis fuscis, anticis puncto minuto (interdum duobus) ultra cellulam, tribus subapicalibus in linea transversa, albo-hyalinis: subtus anticis pallidioribus, punctis ut supra, ad angulum analem et marginem externum griseis; posticis quoque griseis, costa et fasciis duabus transversis ab apice ad marginem internum extendentibus, fuscis; palpis albidis; antennis subtus colore eodem notatis; ciliis griseis, indistincte fusco maculatis.

♀ mari similis, sed punctis semper duobus ultra cellulam.

Hab. MEXICO, Acapulco, Dos Arroyos, Rio Papagaio, Venta de Zopilote, Tierra Colorada, Cuernavaca, Atoyac, Fortin, Teapa (*H. H. Smith*), Misantla, Jalapa (*F. D. G.*), Orizaba (*H. J. Elwes*), Paso de San Juan (*coll. Schaus*); GUATEMALA (*F. D. G. & O. S., Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché, San Francisco (*Rogers*).—VENEZUELA; GUIANA.

A common insect in Mexico, whence we possess a long series from both the Eastern and Western States. We have received a Venezuelan specimen from Mr. Semper marked "*Cobalus catocala*, Herrich-Schäffer," but it does not agree with the brief description of that species. Our figures are taken from Mexican specimens. For the genitalia of the male, see Tab. CI. fig. 11.

6. **Megistias fraus**, sp. n. (Tab. CI. fig. 12, ♂.)

Alis nitide fuscis, anticis punctis tribus subapicalibus in linea transversa albo-hyalinis: subtus pallidioribus, anticis obscure fusco marmoratis, plaga subquadrata subapicali fusca; posticis fasciis tribus, una ad basin, secunda mediana, tertia submarginali, obscure fuscis.

Hab. MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Panima in Vera Paz (*Champion*); HONDURAS (*Mus. Brit.*).

At present we have only seen three examples which certainly belong to *M. fraus*, a male in good condition from Teapa, a worn specimen from Panima (now without a body), and another in the British Museum, all of them being from the Atlantic slope.

Except for the three subapical hyaline spots on the primaries, the upperside is of a uniform fuscous colour; the secondaries beneath are conspicuously marked with alternately light and dark bands.

7. **Megistias telata**. (Tab. CI. figg. 13, 14, 15, ♂.)

Cobalus telata, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 81¹.

Hesperia telata, Plötz, Stett. ent. Zeit. 1883, p. 51².

Alis fuscis, anticis punctis duobus inter ramos medianos ad cellulæ finem, duobus aut tribus in linea transversa subapicalibus et duobus minutissimis in costæ medio (interdum obsoletis), sordide albis: subtus anticis fuscis, punctis ut supra sed majoribus, costa (apicem versus latiore) ferruginea, ad marginem externum griseo notatis; posticis ferrugineis, fasciis duabus irregularibus a margine interno, una ad costam, altera apicem versus extendentibus, griseis; ciliis griseis, fusco maculatis: subtus palpis et corpore pilis albidis vestitis.

♀ mari similis.

Hab. MEXICO, Presidio de Mazatlan (*Forrer*), Mazatlan (*G. Mathew*), Acapulco, Dos Arroyos, and Rio Papagaio, all in Guerrero (*H. H. Smith*), Paso de San Juan (*coll. Schaus*), Atoyac (*Schumann & H. H. Smith*), Valladolid in Yucatan (*Gaumer*); HONDURAS, Ruatan I. (*Gaumer*).—VENEZUELA, Puerto Cabello, La Guayra²; GUIANA.

This is a fairly common species in Mexico, from which country we have received numerous examples, from both the Atlantic and Pacific slopes.

Our series shows considerable variation; the small spots at the middle of the costa of the primaries (as well as those beyond the cell) are sometimes very indistinct above, but they are always conspicuous beneath, where they are confluent. The underside of the secondaries in some individuals is darker than in others, and the ferruginous markings are paler, approaching to fulvous. Our figures are taken from Mexican specimens. For the genitalia of the male, which are not unlike those of *Cobalopsis dyscritus* (Mab.), see Tab. CI. fig. 15, the insect in this respect differing from all others of the genus.

c. Primaries usually with an oblique series of ochreous spots.

8. *Megistias epiberus*. (Tab. CI. figg. 16, 17, 18, ♂.)

Pamphila epiberus, Mab. Le Nat. 1889, p. 134, f. 2¹.

Alis fuscis, anticis costa et maculis, venis divisis, serie obliqua inter ramos medianos, ochraceis, posticis squamis et pilis coloris ejusdem vestitis: subtus ochraceo-ferrugineis, anticis dimidio interiore a basi usque ad ramum medianum nigrescentibus et maculis duabus discalibus flavis.

♀ mari similis.

Hab. MEXICO, Misantla, Vera Cruz (*F. D. G.*), Coatepec (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*); HONDURAS (*Dyson*); PANAMA, Chiriqui¹ (*ex Staudinger*).—SOUTH AMERICA to Brazil; TRINIDAD.

Of this very variable species we have examples of each sex, from Atoyac and Teapa, which are dark fuscous on the upperside, with no spots, and, again, we have others from the same localities with a well-marked oblique tapering series of ochreous spots on the primaries; they vary also in a similar manner in the colour of the underside of the wings. Between these two extremes we have intermediate forms. We have dissected four males, and the genitalia show no difference of any importance, see Tab. CI. fig. 18. Our figure of the insect is taken from a specimen from Chiriqui.

9. *Megistias leucone*, sp. n. (Tab. CI. figg. 19, 20, 21, ♂.)

Alis fuscis, maculis duabus distinctis in linea obliqua inter ramos medianos, ochraceis, costa dense, aliter sparsim squamis flavis tectis, posticis inter ramos ultra cellulam quoque squamis coloris ejusdem dense vestitis: subtus ut supra, anticis dimidio interno a basi usque ad ramum medianum secundum obscure fuscis.

♀ mari similis.

Hab. GUATEMALA, Dueñas, San Gerónimo (*Champion*).

An obscure species, much resembling *M. epiberus*, but distinguishable from it by the primaries having only two distinct ochreous spots, instead of an oblique series tapering towards the apex, as well as by the form of the genitalia of the male, for which see Tab. CI. fig. 21.

PARPHORUS, gen. nov.

Phlebodes storax, Mab., from Chiriqui, is taken as the type of this genus. In the general coloration of the underside of the wings it agrees with *Apaustus menes* and *Callimormus gracilis*, i. e. the nervures of the secondaries and those at the apex of the primaries are yellow. The primaries of the male have a very conspicuous raised brand, formed of two kinds of scales, this being still more developed and more oblique than in *Phlebodes*, as here understood; the body is more slender than in that genus, and the secondaries are much less produced at the anal angle. The antennæ are about half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are rather narrow, moderately elongate, and blunt at the tip, the costa arched at the base; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about three times as long as the lower, the latter being only half the length of the third median segment; the lower radial is strongly depressed at the base; the first branch arises from the middle of the median nervure, the second at some distance before the lower angle of the cell. The secondaries are very slightly lobed at the anal angle; the discocellulars are faint and strongly oblique. The body is rather slender. The middle tibiæ are without spines; the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CI. fig. 24) have a stout, oblique, curved, greyish brand, extending from the origin of the second median branch to the submedian nervure at about one-third from the base, and nearly filling the angle between the second median segment and the first median branch, this being bordered above and within by an irregular, raised, velvety-black streak.

1. **Parphorus storax.** (Tab. CI. figg. 22–25, ♂.)

Phlebodes storax, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. lxxxiii¹.

Alis fuscis, anticis stigmatate nigrescente, ultra eum squamis ochraceis vestitis, maculos tres in linea obliqua formantibus: subtus dilutioribus, anticis in costa et ad apicem posticisque omnino venis flavis ornatis; palpis subtus flavescentibus; corpore subtus albido.

♀ mari similis, sed supra alis immaculatis.

Hab. PANAMA, Chiriqui¹ (*Ribbe, in mus. Staudinger*).—COLOMBIA, Rio San Juan; VENEZUELA; GUIANA, Roraima.

Mabille's type from Chiriqui is before us, and also several others from the same locality, as well as three from further south, most of them kindly lent us by Dr. Staudinger. *P. storax* is exceedingly like *Callimormus omadius* in coloration, but

has a short, blunt terminal joint to the palpi. As we have no Central-American specimens of our own, we have dissected the genitalia of a male from Guiana, for which see Tab. CI. fig. 25.

VORATES, gen. nov.

The two small Tropical-American species placed here, of which we take *Cobalus decora*, H.-S. (= *Apaustus tanaquilus*, Möschl.), as the type, are very like *Parphorus storax* (Mab.), and agree with it in having the nervures of the underside of the secondaries, as well as those at the apex of the primaries, yellow; but the form of the brand of the primaries of the male is very different, this character also separating it from *Phlebodes*. *V. decorus* approaches *Euroto* in the shape of the brand, but the structure of the genitalia, as well as the general coloration, shows that it has no real affinity with that genus. Of the second species, *V. sapala*, we have seen only two examples without palpi. The antennæ are more than half the length of the costa, and have a stout club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are moderately long, somewhat pointed at the tip, and arched on the costa at the base; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the lower one short and of the same length as the third median segment; the first branch arises before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are very feebly lobed at the anal angle; the discocellulars are oblique and very faint. The body is moderately stout. The middle tibiæ are without spines, and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CI. fig. 28) have a somewhat conspicuous double brand: (1) a rather broad streak extending along the second median segment, not quite reaching its base; (2) a short longitudinal streak below it, a little beyond the base of the first median branch. The upper portion of the brand is longer, broader, and more conspicuous in *V. sapala* than it is in *V. decorus*.

1. *Vorates decorus*. (Tab. CI. figg. 26-29, ♂.)

Cobalus decora, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 81 (1869)¹.

Apaustus tanaquilus, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 222².

Alis obscure fuscis, stigmatibus obscurioribus, anticis maculis tribus in linea curvata infra et ultra cellulam, una ad apicem proxima minuta, secunda elongata, tertia subovali, puncto minuto subapicali, ochraceis: subtus fuscis, anticis maculis ut supra, sed ea juxta venam medianam absente; anticis costa, ramis subcostalibus et ramis discoidalibus flavis, venis posticarum coloris ejusdem.

♀ nobis ignota.

Hab. MEXICO, Atoyac (*H. H. Smith*); PANAMA, Chiriqui (*mus. Staudinger*).—COLOMBIA²; VENEZUELA, Puerto Cabello; LOWER AMAZONS; BRAZIL.

Of this species we have seen two Central and several South-American examples; the one from Chiriqui was lent us by Dr. Staudinger under the name of *Pamphila decora*,

Herrich-Schäffer, and it agrees fairly with that author's brief description. We have also seen the type of *Apaustus tanaquilus*, Möschler. *V. decorus* closely resembles *Phlebodes tiberius* (Möschl.), but it has radiating yellow lines on the secondaries, and also at the apex of the primaries, beneath, which is not the case in the latter insect *. A male from Atoyac is figured. For the genitalia, see Tab. CI. fig. 29.

2. **Vorates sapala**, sp. n. (Tab. CI. figg. 30, 31, ♂.)

Alis fuscis, stigmatibus obscuriore, anticis maculis tribus, una angusta et elongata inter ramos medianos primum et secundum, secunda ultra eam minore et subquadrata, tertia subapicali, flavo-hyalinis, costæ dimidio basali, et fascia indistincta inter venam medianam et submedianam in macula terminata, ochreis; posticis (nisi area costali) squamis ochraceis vestitis: subtus fuscis, anticis costa lineis duabus, aliisque apicalibus, flavis, posticis lineis radiantibus venas sequentibus coloris ejusdem.

♀ ignota.

Hab. PANAMA, Chiriqui (*ex Staudinger*).

Two males of this species have been sent us by Dr. Staudinger for determination. It is a very close ally of *V. decorus* (H.-S.), but differs in having the brand on the primaries longer and beneath the upper portion of it there is an elongate hyaline spot. The costa of the primaries, a streak between the median and submedian nervures, and the greater part of the upper surface of the secondaries are clothed with ochreous scales, these being absent on the secondaries of *V. decorus*.

PHERÆUS, gen. nov.

This genus includes a single species of small size from Central America, described by M. Mabilie under the name of *Carystus epidius*; it has long, narrow primaries, a short, stout terminal joint to the palpi, long antennæ, with a long crook, a moderately stout body, a >-shaped brand on the primaries in the male, and the underside of the secondaries peculiarly coloured. In the general shape of the wings it approaches *Callimormus*. The antennæ are a little more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are narrow, elongate, blunt at the tip, and arched on the costa at the base; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about twice as long as the lower; the third median segment is very short; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the apical angle; the discocellulars are very faint. The body is moderately stout. The hind tibiæ have two pairs of spurs. The primaries of the male have a stout, inconspicuous, >-shaped brand in the angle

* There is another closely allied unnamed species from South America in our collection, which has the underside very similarly marked, but in this insect the brand is larger and formed like that of *Phlebodes tiberius*.

between the base of the second median segment and the origin of the first median branch.

In the form of the brand, which is covered by coarse scales, the present genus appears to agree with *Artines*, but the latter has a long, erect, terminal joint to the palpi.

1. **Pheræus epidius.** (Tab. CI. figg. 32, 33, ♂.)

Carystus epidius, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. cxix¹.

Alis fuscis, stigmatæ concolore, anticis maculis duabus discalibus, una inter ramos medianos primum et secundum subquadrata, altera minore ultra eam, flavo-hyalinis; linea indistincta a basi supra venam submedianam, ad alæ medium abrupte terminata, flavida; posticis basin et marginem internum versus pilis obscure ochraceis vestitis, area discali ochracea: subtus ut supra, sed anticis linea submediana absente, posticis bitriente basali (nisi costa ad basin) flava; corpore subtus flavido; anticis et posticis ad angulum analem ciliis ochraceis. ♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui¹ (*mus. Staudinger*).

Dr. Staudinger has lent us a male of this species from Chiriqui, and we have a mutilated female example from Chontales, Nicaragua, captured by Belt. It somewhat resembles *Phlebodes ittona*, Butler, on the underside, but has a much shorter terminal joint to the palpi.

MOLO, gen. nov.

The single Tropical-American species referred to this genus, *Hesperia heræa*, Hew., an insect just entering our limits, appears to be an isolated form, allied to *Padraona* and *Vinius*, from which it differs in having the upper discocellular of the primaries transverse (instead of oblique), the body more robust, &c. From *Atrytone* it may be distinguished by the longer antennæ, with longer crook, the transverse upper discocellular, &c.

The antennæ reach the end of the cell, and have a long stout club, terminating in a long crook. The palpi are densely clothed with scales; the third joint is short, stout, and bluntly conical. The primaries are produced and pointed at the tip; the cell is two-thirds the length of the costa; the upper discocellular is transverse and more than three times the length of the lower, the latter is oblique and half the length of the third median segment; the lower radial is strongly depressed at the base; the first branch arises far before the middle of the median nervure, the second near the lower angle of the cell, the second median segment being longer than the first. The secondaries are produced at the anal angle; the discocellulars are very faint. The body is robust, the head and eyes very large. The middle tibiæ are armed with a few very short spines, the hind tibiæ have two pairs of spurs. The primaries (Tab. CI. fig. 36) are without trace of a brand in the male.

We have specimens of two other nearly allied forms from South America, each of which may have to be taken as the type of a separate genus: one of these is *Pamphila kenava*, Butl., from Venezuela; the other has been sent to us by Dr. Staudinger, under the MS. name of *Pamphila illimanensis*, Staud., from Colombia, Bolivia, and Peru.

1. **Molo heræa.** (Tab. CI. figg. 34–37, ♂.)*Hesperia heræa*, Hew. Descr. Hesp. p. 34 (1868)¹.

Alis anticis fusco-nigris, costæ dimidio basali in cellulam extendente, bitriente marginis interni, maculis quatuor apicem versus minuendis, maculaque bifida subapicali, omnibus nitente aurantiis; posticis area costali late, margine interno anguste, et linea basali abbreviata infra cellulam, fusco-nigris, aliter nitente aurantiis: subtus flavis, ferrugineo notatis, anticis fascia lata irregulari mediana a basi apicem versus extendente, margine interno et angulo anali, nigrescentibus; posticis margine interno fusco.

♀ nobis ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).—GUIANA; AMAZONS, Ega¹.

Of this species there is a single male from Chiriqui in Dr. Staudinger's collection, agreeing with other South-American specimens in our possession and also with Hewitson's types. The Chiriqui insect (not at present before us) was sent under the name of *Pamphila xenarchus*, Mabilie.

The secondaries are beautifully iridescent on the upperside in certain lights. For the genitalia of the male, see Tab. CI. fig. 37. Our figures are all taken from South-American examples.

VINIUS, gen. nov.

To this genus we refer *Pamphila nicomedes* and *P. sagitta*, Mab., and a species from Brazil in our collection*; and *Phemiades ephesus*, Hübn., probably belongs here. These insects are all from Tropical America, *P. sagitta* only appertaining to our fauna.

In general coloration they resemble the species of *Padraona*, but differ from them in having the discocellulars of the primaries more transverse and the second median branch arising almost at the lower angle of the cell; the males, moreover, have a short longitudinal brand above and below the first median branch, and a tuft of very long blackish hairs on the secondaries. The antennæ are moderately long, reaching the apex of the cell, and have an elongate, stout club, terminating in a long crook. The palpi have the third joint rather long, conical, and erect. The primaries are somewhat pointed at the tip; the costa is arched at the base, straight towards the apex; the cell comparatively short, not more than three-fifths the length of the costa; the discocellulars are moderately oblique, the lower one rather more than half the length of the

* **Vinius arignote**, sp. n. (Tab. CI. figg. 38–41, ♂.)

V. sagittæ similis, sed colore fulvo magis extenso, præsertim in area discali posticarum, his macula parva in cellula basi propiore coloris ejusdem: subtus posticis maculis submarginalibus rotundatis, nec elongatis, aliis quoque irregularibus dimidio basali, interdum una majore ad cellulæ finem.

♀ mari similis.

Hab. AMAZONS, Pará, Manaos; BRAZIL, Chapada, Santa Catarina.

Of this species we possess several examples, including both sexes. It is also very like *V. nicomedes* (Mab.), but may be easily separated therefrom by the conspicuous blackish spots on the underside of the secondaries. The insect very much resembles Hübner's figure of *Phemiades ephesus*. A male from Manaos is figured. For the genitalia, see Tab. CI. fig. 41.

upper; the lower radial is very slightly depressed at the base; the first branch arises from the middle of the median nervure, the second almost at the lower angle of the cell, the third median segment thus becoming exceedingly short. The secondaries are very slightly lobed at the anal angle; the discocellulars are very faint. The body is moderately stout. The middle tibiæ are spined, the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CI. fig. 40) have a conspicuous short longitudinal band, formed of two streaks, one above, the other just below the first median branch, at about one-third from its point of origin: the secondaries in this sex have also a conspicuous tuft of very long blackish hairs arising from close to the inner margin of the abdominal fold towards the base.

We figure the fore wing, genitalia, &c. of the South-American *V. arignote* (Tab. CI. figg. 38–41).

1. *Vinius sagitta*. (Tab. CI. figg. 42, 43, ♂.)

Pamphila sagitta, Mab. Le Nat. 1889, p. 173, f. 1¹.

Alis fuscis, stigmatæ concolore, anticis costa, venis divisa apicem versus, lineis duabus in cellula (una infra venam subcostalem, altera supra venam medianam), et fascia maculari obliqua, marginem internum versus latiore et ad apicem valde angulata, omnibus fulvis; posticis fascia irregulari transversa coloris ejusdem: subtus pallide ochraceis, anticis striga lata a basi in ramos duos furcata, uno apicem versus ad cellulæ finem angulato, altero ad angulum analem extendente, lineis duabus (una costali, altera subcostali), maculis parvis quinque submarginalibus, duabus apicem propioribus elongatis, omnibus fuscis; posticis maculis elongatis dispersis coloris ejusdem.

♀ nobis ignota.

Hab. PANAMA, Chiriqui¹ (*Ribbe*).

Dr. Staudinger has lent us a male example of this species. It is very closely allied to *V. arignote*, but differs from that insect in its darker colour, the fulvous markings being narrower above; and, beneath, the submarginal spots of the primaries, and also those on the secondaries, are elongated, instead of being rounded.

PADRAONA.

Padraona, Moore, Lep. Ceyl. i. p. 170 (1881); Watson, P. Z. S. 1893, p. 101.

Under this genus Watson includes a number of Asiatic and Australian species, as well as one (*Hesperia epictetus*, Fabr.) from Tropical America and one (*Hesperia coroller*, Boisd.) from Madagascar. The last-mentioned certainly does not belong here, and we adopt the generic name, with some reserve, for *H. epictetus*, which is a common insect in Central America. *Padraona* probably includes other South-American forms; it differs from *Zariaspes* in having two pairs of spurs to the hind tibiæ, and longer antennæ, with longer crook.

The antennæ about reach the end of the cell, and have an elongate club, terminating in a long crook. The palpi have the third joint moderately short, semierect, and bluntly conical. The primaries are pointed; the cell is less than two-thirds the length

of the costa; the discocellulars are oblique, the lower one very short; the lower radial is depressed at the base; the first branch arises near the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are feebly lobed at the anal angle; the discocellulars are very faint. The body is rather stout. The middle tibiæ are without spines and the hind tibiæ have two pairs of spurs. The primaries in the male in the American species are without trace of a brand.

The members of this genus have the wings blackish, with orange markings. *P. epictetus*, as in certain species of *Atrytone*, has the costa of the secondaries clothed with longish hairs at the base.

1. *Padraona epictetus*. (Tab. CI. figg. 44, 45, 46, ♂.)

Hesperia epictetus, Fabr. Ent. Syst. iii. p. 330¹; Latr. Enc. Méth. ix. p. 768.

Papilio (Plutargus) epictetus, Don. Ins. Ind. t. 48. f. 4³.

Padraona epictetus, Wats. P. Z. S. 1893, p. 102⁴.

Alis nigro-fuscis; anticis costa, fascia infra cellulam a margine interno prope apicem extendente et ad finem ejus angulata, macula parva ad cellulæ finem, fulvis; posticis plaga magna, discali quoque fulva, ad cellulæ finem fusco excisa: subtus ochraceis, anticis dimidio interiore nigro-fuscis, ad cellulæ finem macula erosa.

♀ mari similis.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Panima, San Gerónimo, Zapote (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*); NICARAGUA, Chontales (*Belt, Janson*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui (*Ribbe*), Calobre, Veraguas (*Arcé*), Panama city (*J. J. Walker*).—SOUTH AMERICA to Brazil and Paraguay.

The insect figured under the name of *Pamphila epictetus* (Fabr.) by Dr. Staudinger (as we have already noted, *anteà*, p. 485) = *Zariaspes mys* (Hübner). At first sight the two species are very similar, and inhabit much the same country; they differ, however, not only in their markings, but in structure. Out of about eighty specimens in our collection, one only, and that from Brazil, is a female. For the genitalia of the male, see Tab. CI. fig. 46.

CARYSTUS.

Carystus, Hübner, Verz. bek. Schmett. p. 114 (1816) (part.); Watson, P. Z. S. 1893, p. 121.

This genus includes numerous Tropical-American species, several of which inhabit our region. It is chiefly recognizable by the elongate antennæ, with long crook, the short third joint of the palpi, the rather slender body (except in *C. claudianus* and *C. cynaxa*), and the absence of a brand on the primaries in the male. From *Cobalus* the present genus differs, according to Watson, in the more produced and blunter apices of the primaries, but this character only applies to the few species he included

in it. Most of them are of an obscure fuscous colour, with white markings above, the secondaries beneath being often streaked with white (*C. diversus*) or silvery-white (*C. coryna*). Watson takes *C. jolus* (Cram.) as the type.

The antennæ are about half the length of the costa, and have an elongate, slender club, terminating in a long crook. The palpi have the third joint short. The primaries are moderately elongate, blunt at the tip; the cell is less than (*C. coryna*) or quite (*C. claudianus*) two-thirds the length of the costa; the discocellulars are very oblique, the upper one very much longer than the lower, the latter about as long as the third median segment; the lower radial is depressed at the base; the first branch arises before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the cell is half the length of the wing; the discocellulars are faint and transverse. The body (except in *C. claudianus*) is rather slender. The middle tibiæ are furnished with short spines, the hind tibiæ with two pairs of spurs. The primaries of the male have no trace of a brand.

Amongst the species we place here, there is one (*C. claudianus*) which has the cell of the primaries strongly produced at the apex, the discocellulars, in consequence, being very oblique; this insect also has a stouter body and the second median segment of the fore wings longer than usual.

a. Primaries and secondaries each with a bluish-white patch near the apex, the primaries also with hyaline discal spots.

1. *Carystus claudianus*. (Tab. CII. figg. 1-4, ♂.)

Hesperia claudianus, Latr. Enc. Méth. ix. p. 756¹.

Carystus claudianus, Wats. P. Z. S. 1893, p. 121².

Alis fuscis, anticis maculis quatuor, duabus in cellula, tertia maxima inter ramos medianos primum et secundum, quarta parva et transversa ultra eam, omnibus albo-hyalinis, fascia lata transversa subapicali venis divisa schistaceo-alba; posticis macula magna subrotunda ultra cellulam coloris ejusdem: subtus fere ut supra, anticis macula in venam submedianam albida, costa et triente apicali griseis; posticis area costali et ultra cellulam ad marginem externum grisescens, venis omnibus obscuris; ciliis posticarum angulum analem versus, et abdomine subtus, albis.

♀ mari similis.

Hab. GUATEMALA, Central valleys (*F. D. G. & O. S.*).—COLOMBIA; LOWER AMAZONS; BRAZIL¹; BOLIVIA.

Our collection contains only a single worn male example of this species from Central America. It agrees very well with others before us from Santa Marta and Pará. The figures are taken from South-American examples. For the genitalia of the male, see Tab. CII. fig. 4.

- b. Primaries with three large hyaline spots forming an oblique discal fascia ; secondaries immaculate above, and with the spaces between the nervures greyish-ochreous beneath.

2. **Carystus cynaxa.** (Tab. CII. figg. 5, 6, ♂.)

Hesperia cynaxa, Hew. Descr. Hesp. p. 25 (1868)¹.

Alis nigro-fuscis, chalybeo tinctis, anticis maculis tribus magnis in linea obliqua, una subquadrata in cellula, secunda majore infra eam, tertia subrotunda angulum analem versus, nitide albo-hyalinis : subtus anticis ut supra, sed costa et apice late posticisque viridi-ochraceis, venis omnibus nigris, posticis margine interno chalybeo tinctis.

♀ mari similis.

Hab. MEXICO¹ (*Mus. Brit.*) ; PANAMA, Chiriqui (*mus. Staudinger*).

Hewitson's type of this species is a somewhat worn female, and there is a male of it in fresh condition from Chiriqui in Dr. Staudinger's collection. *C. cynaxa* is perhaps most nearly allied to *C. claudianus* (Latr.), *C. bursa* (Hew.), and *C. jolus* (Cram.), but the position of the hyaline spots sufficiently distinguishes it.

- c. Primaries with or without small white spots, the secondaries with a large white patch.

3. **Carystus ebusa.** (Tab. CII. figg. 7, 8, ♂, var. ; 9, ♂.)

Papilio ebusa, Cram. Pap. Exot. t. 300. ff. C, D¹.

Papilio psecas, Cram. Pap. Exot. t. 342. ff. F, G².

Hesperia belistida, Hew. Trans. Ent. Soc. (3) ii. p. 491³.

Alis nigro-fuscis, posticis macula permagna subtriangulari a margine interno ultra cellulam (illic angustiore) extensa, ciliisque apicalibus, albis : subtus anticis dilutioribus, apicem versus chalybeo tinctis, costa ferruginea, macula supra venam submedianam angulum analem versus, aliisque minoribus plus minusve indistinctis in linea recta apicem versus extendentibus, albis ; posticis coloris ejusdem, venis (submediana excepta) et macula ad cellulæ finem castaneis, margine externo apicem versus irregulariter castaneo et chalybeo notatis, ad angulum analem ipso fusco ; corpore subtus albo.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).—VENEZUELA ; GUIANA^{1 2} ; AMAZONS, Pará³ ; BOLIVIA.

There is a single male specimen from Chiriqui in Dr. Staudinger's collection which we refer to this species. It differs from our southern examples of the same sex in the absence of the spots on the upper surface of the primaries, but as we have intermediate forms from Pará we have little doubt they all belong to one variable insect. Cramer's figure of *P. ebusa* appears to have been taken from a female, and that of *P. psecas* from a male. Our figure of the male insect is taken from the Chiriqui specimen ; that of the genitalia from an example from Pará, for which see Tab. CII. fig. 9.

4. **Carystus marcus.** (Tab. CII. fig. 10, ♂.)

Papilio marcus, Fabr. Mant. Ins. ii. p. 87¹.

Hesperia marcus, Latr. Enc. Méth. ix. p. 753².

Cobalus marcus, Hübn. Zutr. ex. Schmett. ff. 725, 726³.

Alis nigro-fuscis, anticis maculis quinque aut sex, una in cellula, tribus in serie obliqua infra eam, illa inter ramos medianos primum et secundum maxima, una (interdum duabus) subapicali, omnibus albo-hyalinis; posticis plaga subovali transversa ultra cellulam, litura margini interno propiore et ad angulum analem, albis: subtus anticis pallidioribus, maculis ut supra, illa margini interno proxima multo majore, fascia obliqua subapicali albida; posticis canescentibus, fascia a basi, altera valde angulata, ad marginem externum conjunctis, pallide fuscis; corpore subtus albido.

♀ mari similis.

Hab. PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Veraguas (*Arcé*).—SOUTH AMERICA to Cayenne^{1 2} and Brazil², Trinidad.

We have nine Central-American specimens of this species before us; they only differ from those in our long series from South America in having rather more white at the anal angle of the secondaries above, and the fuscous lines on the underside of the same wings are fainter*. We have dissected a male from Bugaba and another from Santarem, and find no difference in their genitalia, for which see Tab. CII. fig. 10.

5. *Carystus aurelius*. (Tab. CII. figg. 11, 12, ♀.)

Hesperia aurelius, Plötz, Stett. ent. Zeit. 1882, p. 455¹.

C. marco similis, sed posticis plaga discali alba posticarum ad angulum analem extendente et subtus area ad angulum analem alba, nec fusca.

♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*).—COLOMBIA; VENEZUELA; BRAZIL¹.

This insect, of which we have two pairs from Chontales, as well as several others from South America, is scarcely anything more than an extreme form of *C. marcus* (Fabr.), from which it differs in having the white discal patch on the upperside of the secondaries extending to the anal angle, this being particularly noticeable in the females. The genitalia of the males, two specimens of which have been dissected, do not differ from those of *C. marcus* and *C. diversus*.

6. *Carystus diversus*. (Tab. CII. figg. 13, 14, ♂.)

Cobalus diversa, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 79¹.

Hesperia diversa, Plötz, Stett. ent. Zeit. 1882, p. 454².

Carystus mæon, Mab. Compt. Rend. Soc. Ent. Belge, xxxv. p. cxx³.

C. marco persimilis, sed subtus venis posticarum marginem externum versus fuscis, nec albis.

♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*); COSTA RICA, Caché (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*), Chiriqui³.—BOLIVIA; BRAZIL².

C. diversus is probably yet another form of *C. marcus*, from which it differs in having the nervures of the underside of the secondaries fuscous towards the outer margin.

* *C. marcus* has by some authors been treated as synonymous with *Papilio phyllus*, Cram. (which is here referred to a different genus), but this is a mistake, the latter having a conspicuous brand on the primaries in the male.

d. Primaries and secondaries each with small scattered whitish spots.

7. *Carystus fantasos*. (Tab. CII. fig. 15, ♂.)

Papilio fantasos, Cram. Pap. Exot. t. 300. ff. E, F¹; Sepp, Surin. Vlind. ii. t. 82².

Papilio abebalus, Cram. Pap. Exot. t. 365. ff. G, H³.

Hesperia abebalus, Latr. Enc. Méth. ix. p. 754⁴.

Alis nigro-fuscis, anticis maculis tribus in serie obliqua infra cellulam, illa in medio maxima, punctisque duobus (internum uno) apici propiore, omnibus albo-hyalinis; posticis fascia ultra cellulam transversa albida (interdum ochracea): subtus anticis ut supra, sed macula margini interno proxima majore et fascia ad marginem externum apicem versus albida; posticis canescentibus, venis et macula ad cellulæ finem alteraque ad angulum analem fuscis; corpore subtus albo.

♀ mari similis.

Hab. MEXICO, Jalisco (*Schumann*), Dos Arroyos (*H. H. Smith*), Atoyac (*Schumann*, *H. H. Smith*), Jalapa (*H. Edwards*, coll. *Schaus*), Coatepec (coll. *Schaus*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, Corosal (*Roe*); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*), Cerro Zunil, Zapote, Panima (*Champion*); HONDURAS (*Dyson*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Chiriqui and Veraguas (*Ribbe*).—SOUTH AMERICA to BRAZIL.

With upwards of fifty specimens before us, more than half of which are from Central America, we are unable to separate *C. abebalus* from *C. fantasos*; some specimens have the band of spots above ochreous, others white, and there are intermediate forms. We have dissected the genitalia of three males from Mexico, for which see Tab. CII. fig. 15; they are extremely like those of *C. marcus*.

8. *Carystus artona*. (Tab. CII. figg. 16, 17, 18, ♂.)

Hesperia artona, Hew. Descr. Hesp. p. 27 (1868)¹.

Alis fuscis, maculis tribus in linea obliqua infra et ultra cellulam, duabus in cellula, tribus subapicalibus in linea transversa, omnibus albo-hyalinis; posticis maculis quatuor in serie transversa ultra cellulam, albidis: subtus anticis ut supra, sed pallidioribus, plaga albida venam submedianam versus, area costali et regione apicali griseis; posticis venis omnibus, area costali margineque interno, lineis quoque inter venas, albo-griseis, aliter purpureo-fuscis, maculis quinque in serie curvata albidis; palpis et corpore subtus pilis albescentibus; ciliis posticarum et angulum analem et marginem internum albidis.

♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*).—SOUTH AMERICA to BRAZIL¹.

We possess several examples of this species from Nicaragua, and we likewise have received it from both Guiana and South Brazil. Hewitson's type was from Rio Janeiro. Our specimens show very little variation, except that in some of the females there is one spot only in the cell. For the genitalia of the male, see Tab. CII. fig. 18.

e. Primaries with scattered hyaline spots; the secondaries immaculate above, silvery beneath, crossed by two longitudinal reddish lines.

9. **Carystus coryna.** (Tab. CII. fig. 19, ♂.)

Hesperia coryna, Hew. Trans. Ent. Soc. (3) ii. p. 494 (1866)¹.

Hesperia catargyra, Feld. Reise der Nov., Lep. p. 519, t. 71. f. 19 (1867)².

Alis fuscis, anticis costa ferruginea, maculis duabus, una inter ramos medianos primum et secundum, altera ultra eam, albo-hyalinis: subtus anticis ut supra, sed pallidioribus; costa et apicem versus ferrugineis argenteo notatis; posticis argenteis, costa et fasciis duabus, una per cellulam transeunte, altera margini interno propiore ad marginem externum extendente, ferrugineis.

♀ mari similis.

Hab. MEXICO, Orizaba (*H. J. Elwes*), Jalapa, Coatepec (*coll. Schaus*); GUATEMALA, Chisoy, Polochic Valley, Salama (*F. D. G. & O. S.*), Chiacam, San Gerónimo (*Champion*); COSTA RICA, Irazu (*Rogers*); PANAMA, Chiriqui (*Arcé*).—SOUTH AMERICA to Bolivia.

This very distinct species is not uncommon in Central America, whence we possess various specimens. *C. coryna* is easily recognized by the silvery underside of the secondaries divided by two longitudinal rusty-red lines. The type of *H. coryna* was from the Amazons¹ and those of *H. catargyra* from Colombia and Venezuela². Southern specimens often have an extra spot on the primaries. For the genitalia of the male, see Tab. CII. fig. 19.

PARACARYSTUS, gen. nov.

There are three Tropical-American Pamphilinæ closely related to *Carystus* that cannot be included in it, as at present understood. These insects are *Hesperia menetriesi*, Latr. (= *H. rona*, Hew.), *Phlebodes koza*, Butl., and *Cobalus hypargyra*, H.-S.; the last-mentioned, and the only one entering our limits, is taken as the type of the present genus. The secondaries are peculiarly coloured beneath, considerably produced at the anal angle, and the cell is comparatively short; the primaries are produced and somewhat pointed at the tip in the male; and the genitalia are very peculiarly formed in this sex, the harpes being produced into a long curved piece. The neuration of the wings (Tab. CII. fig. 22) is like that of *Carystus coryna* (Hew.).

The antennæ are rather more than half the length of the costa, and have a slender club, terminating in a long crook. The third joint of the palpi is short and conical. The primaries are produced at the apex, somewhat pointed in the male and blunt in the female, the costa arched at the base; the cell is less than two-thirds the length of the costa; the discocellulars are very oblique, the upper one twice the length of the lower, the latter being of about the same length as the third median segment; the first branch arises before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are produced at the anal

angle; the cell is less than half the length of the wing; the discocellulars are faint and transverse. The body is moderately stout. The middle tibiæ are conspicuously spined, and the hind tibiæ have two pairs of spurs. The primaries (Tab. CII. fig. 22) are without a brand.

1. **Paracarystus hypargyra.** (Tab. CII. figg. 20–23, ♂.)

Cobalus hypargyra, Herr.-Schäff. Prodr. Syst. Lep. p. 81 (1869)¹.

Alis fuscis, maculis tribus in serie obliqua infra et ultra cellulam, ea in medio maxima, alia in cellula, punctisque duobus (interdum uno) in linea transversa subapicalibus, albo-hyalinis; posticis area costali pilis obscuris vestitis: subtus anticis ut supra, apicem versus griseo tinctis, posticis (venis exceptis) argenteo-cæruleis; tegulis rufis; palpis et corpore subtus albidis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*Ribbe*).—GUIANA; AMAZONS; BRAZIL.

We have nine examples of this species, one only of which is from our country. *P. hypargyra* is very like *P. menetriesi* (Latr.) and *P. koza* (Butl.) on the upperside, but the secondaries are very differently coloured beneath.

Dr. Staudinger has sent us specimens of this insect from the Amazons under the name of *Pamphila hypargyra*, H.-S., and we have a single male from Chiriqui agreeing with them, as well as others from Brazil.

Our single female from Ega is much paler and shows a distinct series of greyish streaks on the secondaries above towards the apex. For the genitalia of the male, see Tab. CII. fig. 23.

ZENIS, gen. nov.

We take *Hesperia minos*, Latr., as the type of this genus, which will probably also include *Carystus ozota*, Butl.; the former is a widely distributed insect in Tropical America, the latter inhabits Venezuela and Brazil. It differs from *Carystus* in having the primaries narrower, with the outer margin concave, the first branch arising from nearer the base of the median nervure, and the second median segment very elongate; the males are without a brand (as in *Carystus*), but have a pencil of long hairs beneath the first median branch.

The antennæ are less than half the length of the costa, and have a moderately stout club, terminating in a long crook. The palpi have their third joint short and erect. The primaries are narrow and elongate, concave on the outer margin, blunt at the apex; the costa is slightly arched at the base, then straight to the apex; the cell is a little less than two-thirds the length of the costa; the discocellulars are very oblique, the upper one three times as long as the lower, the latter of the same length as the third median segment; the lower radial is depressed at the base; the first branch arises considerably before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the cell is not quite half the length of the wing; the discocellulars are faint. The body is

rather slender. The middle tibiæ are without spines; the hind tibiæ have two pairs of spurs. The primaries of the male are without trace of a brand, but they have a pencil of long hairs beneath the first median branch in this sex, these in repose being partly hidden in a longitudinal fold of the wing.

We refer *C. ozota* with some hesitation to this genus, females only of it having been seen. Both this species and *Z. minos* have large white discal spots on each wing above, and a transverse whitish band on the secondaries beneath.

1. **Zenis minos.** (Tab. CII. figg. 24–27, ♂.)

Hesperia minos, Latr. Enc. Méth. ix. p. 756¹.

Alis nigro-fuscis, anticis maculis duabus, una in cellula elongata, altera majore infra eam et ab illa vena mediana tantum divisa, quatuor aut quinque subapicalibus in linea arcuata, infima maxima, albo-hyalinis, sub vena mediana valde penicillatis; posticis fascia transversa discali albida: subtus ut supra, sed pallidioribus et rufo tinctis, posticis fascia transversa albida ad marginem internum interrupta et interdum ochraceo suffusa; palpis subtus pilis pallide griseis, corpore nigrescente; ciliis ad angulum analem alarum griseis. ♀ mari similis, sed major.

Hab. MEXICO, Coatepec, Jalapa (*coll. Schaus*), Atoyac (*H. H. Smith*); GUATEMALA, Chisoy and Polochic Valleys (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Rio Sucio (*Rogers*); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*).—COLOMBIA; GUIANA; BRAZIL¹.

Of this distinct species we have a very long series, both from Central and South America. We notice some variation in the shape of the discal spots of the primaries: in some specimens they are considerably larger and more angular than in others, but this does not appear to be associated with locality. The transverse band on the upper-side of the secondaries is broader in Brazilian examples, but we have intermediate specimens between these extremes. For the genitalia of the male, see Tab. CII. fig. 27.

VETTIUS, gen. nov.

We separate from *Carystus* various Tropical-American forms which have a small conspicuous double brand on the primaries in the male. *Papilio phyllus*, Cram., is taken as the type of the present genus, which will also include *Hesperia lafresnayi*, Latr., *H. laurea*, Hew., *Cobalus triangularis*, Hübn., and *Carystus jabesa*, Butl. Two of the species enter the southern part of Central America.

The antennæ are very long, about reaching the end of the cell, and have an elongate club, terminating in a long crook. The palpi have the third joint short and bluntly conical. The primaries are moderately elongate, blunt at the tip; the cell is considerably less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one more than three times the length of the lower, the latter short and not longer than the third median segment; the lower radial is much depressed at the base; the first branch arises considerably before the middle of the median nervure,

the second near the lower angle of the cell, the second median segment being a little longer than the first. The secondaries are produced at the anal angle; the cell is less than half the length of the wing; the discocellulars are oblique and faint. The middle tibiæ are spined, and the hind tibiæ have two pairs of spurs. The body is rather stout. The primaries of the male have a triangular brand in the angle between the base of the first median branch and the second median segment (this being much less extended beneath the second median segment in *V. lafresnayi*), and immediately below it there is a second longitudinal piece.

1. *Vettius phyllus*. (Tab. CII. figg. 28, 29, ♂.)

Papilio phyllus, Cram. Pap. Exot. t. 176. ff. B, C¹.

Carystus phyllus, Staud. Exot. Schmett. p. 296, t. 99. fig.²

Alis nigro-fuscis, stigmatе grisescente, anticis costa ad basin ferruginea, maculis tribus, una in cellula, secunda maxima et subquadrata infra eam inter ramos medianos primum et secundum, tertia inter ramos medianos secundum et tertium, punctisque duobus in linea transversa subapicalibus, omnibus albo-hyalinis, macula elongata in vena submediana alba, litura dimidio basali marginis interni cærulescente; posticis striga angusta a basi angulum analem versus extendente fasciaque mediana cærulescentibus, hac ultra cellulam venis divisa albescente: subtus anticis ut supra, sed pallidioribus, costa ferruginea, fascia transversa subapicali flava; posticis regione costali late et margine interiore anguste ferrugineis, ad apicem et fascia a basi per cellulam ad marginem externum extendente flavis, linea albida margini interiori propiore; capite albo maculatis, palpis et corpore subtus albescentibus.

♀ mari similis.

Hab. PANAMA, Chiriqui² (*ex Staudinger*), Bugaba (*Champion*).—SOUTH AMERICA to BRAZIL.

We have seen two males and one female of this species from within our limits; they differ from our more southern specimens in having the fulvous marking on the costal margin of the secondaries beneath more extended and the yellow stripes are darker. Cramer's type¹ was from Surinam. *Hesperia laurea*, Hew., is a very closely allied form, but differs in having the fuscous coloration at the anal angle of the secondaries beneath much more diffused. We figure the fore wing of a male of *V. phyllus* (Tab. CII. fig. 28), to show the form of the brand; also the genitalia, for which see Tab. CII. fig. 29.

2. *Vettius lafresnayi*. (Tab. CII. figg. 30, 31, 32, ♂.)

Hesperia lafrenaye, Latr. Enc. Méth. ix. p. 753¹.

Cobalus pica, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 78².

Alis nigro-fuscis, stigmatе inconspicuo, anticis macula parva in cellula, tribus in serie obliqua infra eam, prima maxima et subquadrata, puncto uno (aut duobus) subapicali, albo-hyalinis; posticis plaga magna irregulari elongata albida: subtus anticis ut supra, macula alba super venam submedianam et apicem versus griseo tinctis; posticis fuscis, fascia subtriangulari transversa alba, latissima ad marginem internum et macula fusca notata; posticis ad angulum analem ciliis albis; corpore subtus albo.

♀ mari similis.

Hab. PANAMA (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA to Brazil¹.

Through the kindness of Dr. Staudinger we are able to include this species in our fauna, as he has lent us a pair from Panama, and he has also sent us for examination the type (♀) of *Cobalus pica*, Herrich-Schäffer. *V. lafresnayi* is a very close ally of *V. triangularis* (Hübner), from which, however, it differs in its larger size and in having one or two hyaline spots in the cell. It may be separated at once from *V. phyllus* by the very dissimilar coloration of the underside of the secondaries. For the genitalia of the male, see Tab. CII. fig. 32.

CÆLIADES.

Cæliades, Hübner, Verz. bek. Schmett. p. 106 (1816) ; Scudder, Proc. Am. Ac. Sci. x. p. 145 (1875).

We follow Scudder in taking *Papilio dubius*, Cram. (= *Phlebodes virga*, Butl.), as the type of this genus, which was not identified by Watson, and it will also include *Hesperia fiscella*, Hew.; both are from Tropical America, the last-mentioned entering our limits. It seems best placed near *Carystus*, from which it differs in having a very conspicuous brand on the primaries of the male; the antennæ are also more elongate and have a very long crook, and the lower discocellular of the secondaries is longer and much more oblique. In both species the primaries have a steely lustre on their outer half (not visible in *Carystus*), and the secondaries have a narrow, transverse, sharply defined, whitish band on the underside, this being sometimes very much reduced in *C. dubius*. The brand is not unlike that of the species of the genus *Eutyche*, except that the piece beneath the first median branch is absent.

The antennæ are very elongate, reaching nearly as far as the end of the cell, and have a slender club, terminating in a very long crook. The palpi have the third joint very short and almost concealed. The primaries are elongate, slightly concave on the outer margin, rounded at the tip; the costa is arched at the base, straight towards the apex; the cell is less than two-thirds the length of the costa; the discocellulars are strongly oblique, the lower one much shorter than the upper, the latter of the same length as the third median segment; the lower radial is slightly depressed at the base; the first branch arises slightly before the middle of the median nervure, the second not far from the lower angle of the cell. The secondaries are feebly lobed at the anal angle; the discocellulars are faint, the lower one very oblique and three times the length of the upper. The body is rather slender. The legs are elongate; the middle tibiæ are without spines, and the hind tibiæ have two pairs of very long spurs. The primaries of the male (Tab. CII. fig. 35) have a brand formed of three stout pieces: (1) a short longitudinal streak beneath the second median segment; (2) a similar but longer streak above the first median branch at some distance from its point of origin (these two pieces more extended towards the base of the wing and forming a long >-shaped mark in *C. fiscella*, the upper one sometimes absent in *C. dubius*); (3) a still longer streak above the submedian nervure, extending to a third or more of its length.

1. *Cœliades fiscella*. (Tab. CII. figg. 33-36, ♂.)

Hesperia fiscella, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 77 (1877)¹.

Carystus balteatus, Mab. in litt.²

Alis nigro-fuscis, stigmatе concolore, anticis dimidio distali nitente chalybeis, maculis tribus, una in cellula, secunda supra, et tertia maxima infra eam, tribus minoribus in serie curvata apicem propioribus, una quoque ad medium venæ submedianæ, omnibus albo-hyalinis; posticis fascia indistincta cellulæ finem transeunte: subtus anticis fuscis, maculis ut supra, costa et apice late posticisque (nisi ad angulum analem) castaneis, fascia transversa paginæ superioris posticarum magis distincta et flavescente, anticis ad costæ medium ochraceo pictis; palpis subtus pilis brunneis vestitis.

♀ mari similis.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe & coll. Staudinger*), Lion Hill (*M'Leannan*).—AMAZONS, Pará¹.

This species is a close ally of *C. dubius* (Cram.), from which it differs in having more numerous and larger hyaline spots on the primaries and a broader band on the secondaries. The six Central-American specimens seen agree with Hewitson's type. Dr. Staudinger has sent us examples of it under the MS. name of *Carystus balteatus*, Mab. For the genitalia of the male, see Tab. CII. fig. 36.

DION, gen. nov.

Carystus gemmatus, Butl., is one of the numerous Tropical-American Pamphilinæ which will not fall into any of the genera adopted by Watson, and we are therefore compelled to make it the type of a new genus; it may be remarked, however, that we possess two or three unnamed South-American forms which perhaps belong here. It approaches *Cœliades*, but has a very differently formed brand on the primaries in the male. *D. gemmatus* is remarkable from the fact that it has metallic-blue spots on the secondaries beneath.

The antennæ are about half the length of the costa, and have an elongate club, terminating in a long crook. The palpi have the third joint very short and concealed. The primaries are elongate, arched on the costa, and blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one much longer than the lower, the latter a little shorter than the third median segment; the lower radial is slightly depressed at the base; the first branch arises before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are lobed at the anal angle; the discocellulars are faint. The body is rather slender. The middle tibiæ are spined and the hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous, oblique, and slightly curved brand, extending from the base of the second median branch to the submedian nervure a little before the middle.

1. **Dion gemmatus.** (Tab. CII. figg. 37, 38, ♂.)*Carystus gemmatus*, Butl. Cist. Ent. i. p. 86¹.

Alis brunneo-fuscis, stigmatibus griseo: subtus anticis dimidio apicali, venis exceptis, multo pallidiores; posticis nigrescentioribus, maculis tribus vel quatuor in linea transversa ultra cellulam cæruleis, maculis quatuor submarginalibus, et alia inter venam medianam et submedianam ad cellulæ finem, rufo-ferrugineis; capite et corpore subtus nigro-fuscis.

♀ ignota.

Hab. COSTA RICA (*Van Patten*¹); PANAMA, Chiriqui (*Arcé*).

We possess three worn specimens of this species, including the type, all of which are males. For the genitalia, see Tab. CII. fig. 38.

B. Terminal joint of the palpi long and erect*.

FLACCILLA, gen. nov.

Papilio æcas, Cram., which we take as the type of this genus, is nearly allied to *Carystus*, but differs from it in having long erect palpi, a conspicuous treble brand on the primaries in the male, and the discocellulars of these wings are almost equal in length.

The antennæ are nearly two-thirds the length of the costa, and have a rather slender club, terminating in a long crook. The third joint of the palpi is long, erect, and pointed. The primaries are elongate, arched on the costa at the base, and blunt at the tip; the cell is about two-thirds the length of the costa; the discocellulars are strongly oblique and about equal in length, the lower one much longer than the third median segment; the first branch arises about the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the cell is a little more than half the length of the wing; the discocellulars are faint, the lower one oblique. The body is rather slender. The middle tibiæ are without spines and the hind tibiæ have two pairs of spurs. The primaries of the male have an elongate, slender, >-shaped brand in the angle between the second median segment and the first median branch, a longitudinal streak immediately below this, and a third still longer streak along the upper edge of the submedian nervure; the secondaries have a fringe of long hairs along the upper edge of the abdominal fold in this sex.

1. **Flaccilla æcas.** (Tab. CII. figg. 39, 40, ♂.)*Papilio æcas*, Cram. Pap. Exot. t. 343. ff. A, B¹.

Alis fuscis, stigmatibus concolore, anticis maculis duabus in cellula elongatis, tribus infra et ultra cellulam in linea obliqua, una submediana, secunda majore inter ramos medianos primum et secundum, tertia ultra

* Very slender in the genus *Callimormus* and others.

eam, una quoque parva subapicali, omnibus albo-hyalinis: subtus obscure fuscis, anticis costa et apice et posticis (margine interno excepto) chalybeo-cæruleo lavatis, venis albidis notatis, margine interno posticarum late pallide fusco, his maculis indistinctis serie submarginali albidis; palpis et abdomine subtus coloris ejusdem; ciliis griseis.

♀ mari similis.

Hab. PANAMA (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA to Brazil.

Of this well-known Tropical-American species there is a single specimen from Panama in Dr. Staudinger's collection, and we therefore have to include it in our list. We give a figure of the fore wing of the male (Tab. CII. fig. 39), to show the position of the brand; also one of the genitalia, for which see Tab. CII. fig. 40.

CYMÆNES.

Cymænes, Scudder, Rep. Peabody Ac. Sci. iv. p. 82 (1872); Proc. Am. Ac. Sci. x. p. 151.

Scudder places under this name two Cuban insects, *Cobalus tripunctus*, H.-S., and *Goniloba malitiosa*, H.-S.. we have seen the types of these; that of the first-mentioned is a female, now without body or palpi, and we therefore take the second species as the type of *Cymænes*; moreover, *C. tripunctus* probably belongs to *Cobalus* as here understood. The genus also includes *Hesperia silius*, Latr., *Cobalus lutulenta*, H.-S., *Pamphila pericles*, Möschl., *P. berus*, Mab., and one new species described below*; *C. pericles* alone not entering our limits. These five species agree very well in their general characters, the structure of the genitalia included; it is quite possible, however, that some of them will prove to be nothing more than varieties.

The antennæ are long, and have an elongate club, terminating in a moderately long crook. The palpi are densely clothed with scales; the third joint is long and erect. The primaries are rather long, blunt at the tip; the costa is strongly arched at the base, thence straight to the apex; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one a little longer than the lower, the latter slightly longer than the third median segment; the first branch arises from the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are very faint and form an angle inwards at their point of junction. The body is rather slender, as are also the legs. The middle tibiæ are without spines and the hind tibiæ have two pairs of spurs. The primaries of the male are without trace of a brand.

* We also have a single specimen from Chiriqui of yet another species that probably belongs here, but as it is without a body and the antennæ are broken, we refrain from describing it.

a. Primaries above uniformly fuscous, or without definite markings.

1. **Cymænes malitiosa.** (Tab. CII. figg. 41, 42, 43, ♂.)

Goniloba malitiosa, Herr.-Schäff. Corresp.-Blatt Regensb. xix. p. 54 (1865)¹.

Cymænes malitiosa, Scudd. Rep. Peabody Ac. Sci. iv. p. 82 (1872)².

Alis fuscis, immaculatis: subtus pallidioribus, anticis costa et apice posticisque omnino rufo-fusco irroratis, posticis fascia irregulari transversa lata ad costam venam submedianam versus extendente coloris ejusdem, interdum area interna squamis griseis vestitis.

♀ mari similis.

Hab. MEXICO, Orizaba (*H. J. Elwes*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*); GUATEMALA, Santa Maria, Pacific slope (*Richardson*), Panima and Purula in Vera Paz, Zapote (*Champion*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Caché (*Rogers*).—CUBA¹.

We have identified this species from the Cuban type lent us by Dr. Staudinger, which, however, is in a very mutilated condition. On the upperside it resembles *C. lutulenta*, but beneath the secondaries are differently coloured. Our series contains twelve specimens, including both sexes. In the single male from Orizaba there is a faint oblique fulvous band on the primaries above; this specimen very much resembles *C. silius*, from which it may be readily separated by the markings on the secondaries beneath. For the genitalia of the male, see Tab. CII. fig. 43.

2. **Cymænes lutulenta.** (Tab. CII. figg. 44, 45, ♂.)

Cobalus lutulenta, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 83¹.

Alis fuscis, unicoloribus: subtus anticis pallidioribus, posticis albidis rufo-brunneo irroratis, margine costali lato, interne exciso, coloris ejusdem.

♀ mari similis.

Hab. PANAMA, Rio Candelaria (*mus. Staudinger*).—COLOMBIA; VENEZUELA.

There is a specimen of this insect from Panama in Dr. Staudinger's collection, but all our own, to the number of five, are from more southern localities. We have identified the species from a male in Dr. Kaden's collection, now in our possession, labelled as the type. For the genitalia of the male, see Tab. CII. fig. 45.

b. Primaries above with definite fulvous markings, at least in the male.

3. **Cymænes syraces**, sp. n. (Tab. CIII. figg. 1, 2, 3, ♂.)

Alis fuscis, anticis fascia obliqua venis divisa ultra cellulam repente angulata marginem costalem versus, macula parva et striga elongata in cellula, fulvis, posticis area interna squamis ochraceis tectis: subtus anticis ut supra, apice irregulariter griseo irroratis; posticis griseis, fusco marmoratis, maculis duabus, una magna in costa subtriangulari, altera minore discali, nigro-fuscis; ciliis griseis, ad fines venarum omnium nigro-fusco maculatis.

♀ mari similis.

Hab. MEXICO, Ciudad, Milpas, and Ventanas, all in Durango (*Forrer*), Rio Papagaio, Dos Arroyos, and Venta de Zopilote in Guerrero (*H. H. Smith*), Lake Chapala (*Richardson*), Jalapa (*coll. Schaus*) ; GUATEMALA, Santa Maria, Pacific slope (*Richardson*), San Gerónimo (*Champion*).

The above description is taken from five brightly-coloured specimens from North-western Mexico ; we have others from the same region which are much darker, with the underside of the secondaries ochraceous (instead of greyish), and the spots, confluent, forming an irregular band, and between these we have many intermediate examples. Our series contains fourteen specimens, including both sexes. The genitalia of the male scarcely differ from those of *C. malitiosa* and *C. lutulenta*, see Tab. CIII. fig. 3. A male insect from Dos Arroyos is also shown on our Plate.

4. *Cymænes silius*. (Tab. CIII. figg. 4, 5, 6, ♂.)

Hesperia silius, Latr. Enc. Méth. ix. p. 764¹.

? *Pamphila silius*, Dewitz, Stett. ent. Zeit. 1877, p. 243, t. 1. f. 5².

Alis fuscis, anticis fascia obliqua venis divisa a margine interno apicem versus extendente, illic angustiore, fulva, in costa squamis coloris ejusdem tectis : subtus anticis fuscis, fascia obliqua ut supra et costa latiore, fulvis ; posticis obscure ochraceis, fusco irroratis.

♀ mari similis.

Hab. MEXICO, Dos Arroyos in Guerrero (*H. H. Smith*), Paso de San Juan (*coll. Schaus*), Valladolid and Temax in Yucatan (*Gaumer*) ; COSTA RICA (*mus. nostr.*) ; PANAMA (*Ribbe, in mus. Staudinger*).—COLOMBIA ; GUIANA ; BRAZIL¹.

We have applied the name of *C. silius* to this insect with some hesitation, though we possess specimens from Brazil, whence the type came, which agree with Latreille's brief description, and with these we associate others from Central America. Herr Dewitz has described and figured² a female insect under this name from Puerto Rico, but we doubt if it really belongs to our species. *C. silius* closely resembles *C. berus*, but differs from it in having a rather narrower oblique fulvous band on the primaries above, and the secondaries are paler beneath ; the male genitalia, too, are slightly dissimilar in form, see Tab. CIII. fig. 6. It is also very nearly allied to *C. malitiosa*, but the primaries always have a distinct oblique fulvous band in both sexes, and the secondaries are paler beneath and want the dark markings.

5. *Cymænes berus*. (Tab. CIII. figg. 7, 8, 9, ♂ ; 10, var., ♂.)

Pamphila berus, Mab. Le Nat. 1889, p. 145, f. 2 (♂)¹.

Pamphila insidiosa, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. clxxxv (♀)².

C. silio similis, sed anticis colore fulvo latiore et posticis (nisi in costa) squamis coloris ejusdem tectis : subtus rufo-fuscis, anticis fascia obliqua ut supra, marginem internum versus pallide ochraceis aut griseis ; posticis brunneo-ferrugineis, in area discali et margine externo interdum squamis schistaceo-griseis vestitis.

♀ supra mari similis, sed colore fulvo fere obsoleto.

Hab. COSTA RICA, Caché, Irazu (*Rogers*); PANAMA, Chiriqui^{1 2} (*ex Staudinger*).—COLOMBIA; BRAZIL.

Dr. Staudinger has lent us the type of *Pamphila berus*—a male from Chiriqui,—and we possess a long series from Costa Rica, as well as others from South America, agreeing with it. *C. berus* is very like *C. silius*, but the secondaries are darker beneath, and the fulvous band on the upperside of the primaries of the female is obsolete. The Costa Rican examples have the underside of the primaries ochreous towards the anal angle, and that of secondaries with a more or less distinct, attenuate, dark band extending inward from the costal margin near the apex. The females appear to differ from the same sex of *C. malitiosa* in the paler anal angle of the underside of the fore wings. Dr. Staudinger has also sent us specimens of it under the names of *Pamphila silius*, Latreille, from Brazil, and *P. insidiosa*, Mabilie, from Chiriqui.

We figure a typical male of *C. berus* from Chiriqui (Tab. CIII. figg. 7, 8); also a brightly-coloured specimen of the same sex from Caché, Costa Rica (fig. 10), and the genitalia of another example from the same locality, for which see Tab. CIII. fig. 9.

MNASEAS, gen. nov.

Thymelicus bicolor, Mab., from Central America, is taken as the type of this genus. It is very like *Mastor*, but has a longer and more slender terminal joint to the palpi, a shorter club to the antennæ, the brand on the primaries of the male more oblique, and the genitalia in this sex totally different in form. *Mnaseas* would perhaps be better placed near that genus, but in the form of the palpi it approaches *Cymænes*.

The antennæ are less than half the length of the costa, and have an elongate, stout, gradually thickened club, terminating in a moderately long crook. The third joint of the palpi is long, erect, and rather slender. The primaries are short and blunt at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one much longer than the lower; the lower radial is depressed at the base; the first branch arises before the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are faint. The middle tibiæ are spined, and the hind tibiæ have two pairs of spurs. The body is stout. The primaries of the male have a very narrow oblique interrupted brand extending from the base of the second median branch to the submedian nervure at about one-third from the base.

1. *Mnaseas bicolor*. (Tab. CIII. figg. 11, 12, 13, ♂.)

Thymelicus bicolor, Mab. Le Nat. 1889, p. 174, f. 4¹.

Alis nitide fuscis, stigmatæ concolore: subtus pallidiore, anticis costa et apice posticisque (nisi margine interno) ferrugineis; palpis subtus griseis; antennis subtus ad clavæ basin flavidis; ciliis sordide ochraceis.
♀ mari similis: subtus alis obscurioribus.

BIOL. CENTR.-AMER., Rhopal., Vol. II., February 1901.

Hab. MEXICO (*mus. nostr.*); GUATEMALA, Panzos (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*¹); NICARAGUA, Chontales (*Belt*).—COLOMBIA, Bouda (*H. H. Smith, in Mus. Pittsburg.*).

Our description of the male is taken from two type-specimens from Honduras lent us by Dr. Staudinger, and one from Panzos in our own possession; the females from Nicaragua and Mexico are both imperfect, but we have seen one from Colombia in good condition. *M. bicolor* very closely resembles *Mastor anubis*, but differs from it in having a narrow oblique brand on the primaries of the male, and also in having a longer and more slender terminal joint to the palpi.

Our figure of the male insect is taken from one of the types from Honduras. For the genitalia (from the Panzos specimen), see Tab. CIII. fig. 13.

METHIONOPSIS, gen. nov.

The two small Tropical-American species referred to this genus are of a uniform nigro-fuscous colour above, in this respect not differing from many other Pamphilinæ inhabiting the same region. We take *M. modestus* as the type*. *Methionopsis* may be recognized chiefly by the long, erect, terminal joint of the palpi, the long antennæ, with long crook, the equal length of the discocellulars of the primaries, and the form of the brand in the male.

The antennæ are half, or more than half, the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is long, erect, and pointed. The primaries are rather elongate, and blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, equal in length; the lower radial is not depressed at the base; the first branch arises about the middle of the median nervure, and the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the cell is half the length of the wing; the discocellulars are oblique and very faint. The body is rather slender. The middle tibiæ are without spines and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CIII. fig. 15) have the brand formed of two portions: one, a very long slender >-shaped piece, the upper arm of which runs the whole length of the second median segment to considerably beyond the base of the second median branch, the lower arm being much shorter; the other, a slender longitudinal streak immediately below the first median branch. In *M. typhon* the brand is reduced to a long streak below the second median segment and a short one beneath the first median branch.

In the neururation of the wings this genus approaches *Amblyscirtes*, *Butleria*, &c. The terminal joint of the palpi is a little stouter and shorter than in *Callimormus*. The male genitalia are very similarly formed in the two species.

* In Dr. Staudinger's collection there is a male of an unnamed species from the Rio San Juan, Colombia, very like *M. modestus*, but it is much larger and has longer antennæ.

1. **Methionopsis modestus**, sp. n. (Tab. CIII. figg. 14, 15, 16, ♂.)

Cobalus philemon, Butl. Cat. Fabr. Diurn. Lep. p. 272, t. 3. f. 11 (nec Fabr.)¹.

Pamphila modesta, Staud. in litt.²

Alis nigro-fuscis, unicoloribus, stigmatе concolore: subtus ut supra, sed anticis margine interno pallidiore; ciliis fuscis; palpis pilis griseis et fuscis intermixtis vestitis; antennis subtus ad clavæ basin griseis.

♀ mari similis.

Hab. MEXICO, Dos Arroyos and Venta de Zopilote in Guerrero, Atoyac, Teapa (*H. H. Smith*), Orizaba (*H. J. Elwes*); GUATEMALA, Zapote (*Champion*); HONDURAS (*Dyson, in Mus. Brit.*¹); PANAMA, Chiriqui (*mus. Staudinger*), Taboga I. and Panama city (*J. J. Walker*).—SOUTH AMERICA to Brazil.

Of this obscure species we have a long series from Mexico, as well as from many other more southern localities. Dr. Staudinger has sent us specimens of it under the MS. name *Pamphila modesta*, and one as *P. umber* (Herrich-Schäffer); this latter name, however, we have provisionally applied to a different species.

We have examined the Fabrician type of *Papilio philemon*, Fabr., in the Banksian collection, as well as the Honduras specimen in the British Museum referred to it by Dr. Butler, and find that they belong to different genera; the first-mentioned has a short, and the latter a long and erect, terminal joint to the palpi.

We figure a male insect from Teapa, also the fore wing and the genitalia, for which latter see Tab. CIII. fig. 16.

2. **Methionopsis typhon**, sp. n. (Tab. CIII. fig. 17, ♂.)

Alis nigro-fuscis, unicoloribus, stigmatе concolore: subtus ut supra, sed purpureo tinctis, anticis margine interno pallidiore; palpis fuscis, pilis quibusdam aureis intermixtis.

♀ nobis ignota.

Hab. GUATEMALA, Zapote (*Champion*).

Our collection contains four rather worn males of this species. It is very like *M. modestus*, but smaller, the brand is less developed, and the first median branch is further from the base, so that the second median segment is much shorter.

For the genitalia of the male, see Tab. CIII. fig. 17.

EUTOCUS, gen. nov.

Two very small Tropical-American species are referred to this genus, which is perhaps nearest allied to *Methionopsis*, but differs from it in the form of the brand on the primaries of the male, as well as in the neuration of these wings. Both are of a uniform nigro-fuscous colour above, with the underside slightly paler. We take *E. phthia* as the type.

The antennæ are rather more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is elongate, erect, and pointed. The primaries are narrow, moderately long, and blunt at the tip; the cell is

three-fifths the length of the costa ; the discocellulars are oblique, the upper one much longer than the lower ; the lower radial is considerably depressed at the base ; the first branch arises about the middle of the median nervure, the second from the lower angle of the cell, the third being almost in a line with the median nervure. The secondaries are rounded at the anal angle ; the cell is half the length of the wing ; the discocellulars are oblique and very faint. The body is slender. The middle tibiæ are without spines, the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CIII. fig. 19) have a conspicuous sagittiform brand in the angle between the second median segment and the first median branch.

1. **Eutocus phthia**, sp. n. (Tab. CIII. figg. 18, 19, 20, ♂.)

Alis nigro-fuscis, stigmatæ concolore, anticis squamis nonnullis ultra cellulam fulvis : subtus anticis margine interno pallidiore, costa et apice posticisque squamis fulvis sparsim vestitis ; palpis pilis aureis et fuscis intermixtis vestitis ; antennis ad clavæ basin flavo annulatis.

♀ mari similis.

Hab. MEXICO, San Lorenzo, near Cordova (*M. Trujillo*), Atoyac, Teapa (*H. H. Smith*) ; GUATEMALA, Panima (*Champion*) ; NICARAGUA (*Belt*) ; COSTA RICA, Caché, Rio Sucio, Irazu (*Rogers*) ; PANAMA, Chiriqui (*Ribbe*), Volcan de Chiriqui (*Champion*).—SOUTH AMERICA to Guiana.

A common insect in Central America, long series of it having been received from Teapa, Caché, &c. *E. phthia* is so like *Methionopsis modestus* that it would certainly be confused with it, unless the form of the brand and neuration were taken into account ; it is, however, considerably smaller.

Our figures are taken from Teapa specimens. For the genitalia of the male, see Tab. CIII. fig. 20.

2. **Eutocus volasus**, sp. n.

Alis fuliginoso-nigris immaculatis, stigmatæ concolore : subtus ut supra, sed paulo rufescentioribus, anticis dimidio interiore præsertim apud angulum analem pallidiore, regione costali, apice, posticisque omnino, squamis ochraceis sparsim vestitis.

♀ ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

We have taken our description of this obscure species from a single male specimen (without palpi) lent us by Dr. Staudinger under the name of *Pamphila volasus*, Mabilie, but we are unable to find that this name has ever been published *. *E. volasus* is very like *E. phthia*, but the wings are redder beneath and have some widely scattered ochreous scales ; the brand on the primaries, moreover, is less distinct.

* *Proteides volasus*, Mab., from Bogota, must be a very different insect.

EPEUS, gen. nov.

The single Central-American species referred to this genus is an isolated form, and cannot be included in any of the other genera enumerated here. In the venation of the primaries it approaches *Butleria*, which, however, has very differently formed antennæ and palpi. From the numerous small Tropical-American species, of a uniformly fuscous colour above, it may be distinguished by the comparatively short cell of the primaries, which have the second and third median branches arising from the lower angle of the cell, and the brand in the male formed by two longitudinal streaks, one extending beyond the end of the cell, the other reaching to near the base of the wing.

The antennæ are about half the length of the costa, and have an elongate gradually thickened club, terminating in a long crook. The palpi have their third joint long, conical, and erect. The primaries are blunt at the tip, and have the costa arched at the base; the cell is three-fifths the length of the costa; the discocellulars are transverse, the upper one a little longer than the lower; the lower radial is slightly depressed at the base; the first branch arises from the middle of the median nervure, the second and third from the lower angle of the cell, the last almost in a line with the end of the median nervure. The secondaries are rounded at the anal angle; the cell is half the length of the wing; the discocellulars are very faint. The body is slender. The middle tibiæ are without spines, the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CIII. fig. 22) have a conspicuous brand, formed of two longitudinal pieces, one extending the whole length of the second median segment to beyond the base of the second median branch, the other running from near the proximal end of the first median segment to beyond the base of the first median branch.

The males have, in addition to the brand, a fringe of very long hairs along the inner edge of the abdominal fold of the secondaries.

1. *Epeus veleda*, sp. n. (Tab. CIII. figg. 21, 22, 23, ♂.)

Alis nigro-fuscis, unicoloribus, stigmatibus concoloribus; posticis margine interiore pilis elongatis: subtus ut supra, sed (nisi dimidio interiore anticarum) squamis minutis ochraceis sparsim vestitis; palpis pilis aureis et fuscis intermixtis; antennis subtus ad clavæ basin ochraceis.

♀ mari similis.

Hab. MEXICO, Misantla (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Panima in Vera Paz, Zapote (*Champion*); HONDURAS (*Wittkugel, in mus. Staudinger*); PANAMA, Chiriqui (*mus. Staudinger*).

A common insect in Central America, of which we possess upwards of sixty examples. Our figures are taken from Teapa specimens. For the genitalia of the male, see Tab. CIII. fig. 23.

MNASICLES, gen. nov.

This is another genus based upon two small Central-American species, both of which are uniformly fuscous on the upperside. Its chief characters are the long, pointed, erect, terminal joint of the palpi, the elongate antennæ, with long crook, and the oblique narrow interrupted brand on the primaries of the male, in which sex also there is, in *M. geta*, which we take as the type, a dense fringe of very long hairs on the inner margin of the abdominal fold of the secondaries.

The antennæ are rather more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is long, slender, erect, and pointed. The primaries are rather short, and blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are transverse, the lower one about half the length of the upper; the lower radial is strongly depressed at the base; the first branch arises from the middle of the median nervure, the second immediately before the lower angle of the cell. The secondaries are rounded at the anal angle; the discocellulars are oblique and very faint. The body is rather slender. The middle tibiæ are without spines and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CIII. fig. 25) have an indistinct, narrow, oblique, interrupted brand extending from the base of the second branch to near the middle of the submedian nervure.

The form of the brand sufficiently distinguishes this genus from both *Methionopsis* and *Epeus*.

1. **Mnasicles geta**, sp. n. (Tab. CIII. figg. 24, 25, 26, ♂.)

Alis obscure fuscis, unicoloribus, stigmatæ concolore: subtus vix pallidioribus, anticis margine interno et externo, posticis dimidio basali et margine externo, squamis sparsis schistaceo-griseis tectis; palpis pilis fuscis et griseis intermixtis vestitis; antennis subtus clavæ basin ochraceis.

♀ mari similis.

Hab. MEXICO, Misantla (*F. D. G.*), Orizaba (*H. J. Elwes*), Coatepec (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Zapote (*Champion*); HONDURAS, San Pedro (*Whitely*); COSTA RICA, Caché (*Rogers*).

Sent us in abundance from Eastern Mexico and more sparingly from Guatemala and Costa Rica. Its chief distinguishing characters are the dense fringe of long hairs on the inner margin of the secondaries in the male and the bluish-grey mottling of the same wings beneath. *M. geta* is extremely like *Epeus veleda*, the general shape of the wings and the coloration of the upper surface being exactly similar, but may be separated from it at a glance by the very different shape of the brand, as well as by the neuration, the colour of the underside, and other particulars. Our figures are taken from Teapa specimens. For the genitalia of the male, see Tab. CIII. fig. 26.

2. *Mnasicles hicetaon*, sp. n. (Tab. CIII. fig. 27, ♂.)

Alis fuscis, stigmatе concolore: subtus pallidioribus, anticis area mediana obscuriore, costa et apice anticearum late, posticisque omnino, squamis ochraceis sparsim tectis; palpis et corpore subtus pilis griseis vestitis.

♀ ignota.

Hab. MEXICO, Ciudad in Durango (*Forrer*), Vera Cruz (*F. D. G.*).

We have placed three male insects under this name, the one from Durango being in very bad condition.

M. hicetaon may readily be known from *M. geta* by the different coloration of the underside of the secondaries, as well as by the absence of the fringe of long hairs on the upperside of these wings in this sex. For the genitalia of the male, see Tab. CIII. fig. 27.

CALLIMORMUS.

Callimormus, Scudder, Rep. Peabody Ac. Sci. iv. p. 74 (1872); Proc. Am. Ac. Sci. x. p. 131.

The type of this genus is *C. juvenis*, Scudd., from Panama, the original specimen of which, a female, we have examined. *Ancyloxypha gracilis* and *A. corades*, Feld., and *Apauatus filata*, Plötz, also belong here, as well as some other Tropical-American forms. The species are all of small size, with very long, slender, erect, terminal joint to the palpi, long antennæ, with a long crook, and narrow primaries, which in the male have a brand formed of two longitudinal streaks.

The antennæ are half or more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is very long, slender, erect, and pointed. The primaries are narrow, blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one a little longer than the lower; the lower radial is depressed at the base; the first branch arises about the middle of the median nervure, the second immediately before the lower angle of the cell, the third median segment thus being extremely short. The secondaries are rounded at the anal angle; the cell is broad, and half the length of the wing; the discocellulars are transverse and very faint. The body is slender. The middle tibiæ with (*C. corades*) or without (*C. juvenis*) spines, the hind tibiæ with two pairs of spurs. The primaries of the male have a brand formed of two streaks, one extending along the whole length of the second median segment (*C. juvenis*, Tab. CIII. fig. 30), sometimes >-shaped (*C. corades*, *C. gracilis*, and *C. omadius*), the other just below the first submedian branch at the base.

Callimormus may easily be distinguished from *Ancyloxypha* by the very different neurulation of the primaries, as well as by the presence of a brand in the male, the form of the antennæ, &c. The terminal joint of the palpi is longer and more slender than in *Epeus* and *Methionopsis*.

a. Nervures at the apex of the primaries beneath, and also those of the underside of the secondaries, yellow.

a'. Secondaries with pale discal spots beneath.

1. **Callimormus juvenus.** (Tab. CIII. figg. 28–31, ♂.)

Callimormus juvenus, Scudd. Rep. Peabody Ac. Sci. iv. p. 74¹.

Alis fuscis, stigmatè concolore, anticis maculis duabus distinctis inter ramos medianos ad cellulæ finem, exteriore minutiore, squamis in costa, et punctis tribus minutissimis in linea transversa subapicalibus (sæpe obsoletis), aureis: subtus pallidioribus, maculis ut supra, sed magis obviis, linea angusta flava ad margines exteriores inter venas fusco externe limbata, anticis in costa et ad marginem externum posticisque omnino venis flavis notatis, posticis maculis variis in area discali albidis; palpis subtus flavis; corpore subtus albedo.

♀ mari similis.

Hab. MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Zapote (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA¹.—COLOMBIA; BRAZIL.

Mr. Scudder has lent us the type of this species, which is a female. It is a common insect in South-eastern Mexico, and we have several specimens from Guatemala, Costa Rica, &c. Our figures are taken from Atoyac examples. For the genitalia of the male, see Tab. CIII. fig. 31.

b'. Secondaries without pale discal spots beneath.

2. **Callimormus filata.** (Tab. CIII. figg. 32, 33, ♂.)

Apaustus filata, Plötz, Stett. ent. Zeit. 1884, p. 158¹.

Alis fuscis, unicoloribus, stigmatè concolore: subtus ut supra, sed anticis apicem versus et posticis omnino venis flavis ornatis; palpis et corpore subtus albidis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*ex Staudinger*).—COLOMBIA; VENEZUELA; GUIANA; BRAZIL; CUBA¹.

Dr. Staudinger has sent us a male of this species from Colombia under the name of *Apaustus filata* (Poey), Plötz, and we have accepted this determination as correct, though with some reserve, our specimens answering fairly well to Plötz's description; but it must be observed that we have not seen an example from Cuba, whence the type was obtained. *C. filata* is extremely like *Parphorus storax* (Mab.), the underside of the wings being similarly coloured, but may be easily separated from it by the long terminal joint to the palpi, the very differently shaped brand, &c. It is a larger insect than *C. gracilis*, and has the nervures more distinctly marked with yellow beneath; the genitalia of the males are also differently formed. We have examined a long series of it, two only of which, however, are from within our limits. Some of them have indications of ochreous spots on the primaries. For the genitalia of the male, see Tab. CIII. fig. 33.

3. *Callimormus gracilis*. (Tab. CIII. fig. 34, ♂.)

Ancyloxypha gracilis, Feld. Reise Nov., Lep. t. 74. f. 28¹ (nec Watson).

Apaustus gracilis, Plötz, Stett. ent. Zeit. 1884, p. 158² (nec Watson).

Alis fuscis, stigmatæ concolore, anticis in costa et inter ramos medianos ad cellulæ finem squamis ochreis sparsim vestitis: subtus anticis apicem versus, et posticis omnino, venis pallide ochraceis; palpis coloris ejusdem, corpore albido.

Hab. MEXICO, Teapa (*H. H. Smith*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Arcé, mus. Staudinger*), Volcan de Chiriqui (*Champion*).—COLOMBIA, Bogota^{1 2}; VENEZUELA.

This is one of several small Tropical-American species with yellow radiating lines beneath. It is very like *C. juvenis*, Scudder, but is more obscurely coloured above, and the secondaries beneath have no pale discal spots. Mr. H. H. Smith sent us a long series of specimens from Teapa and we have others from more southern localities.

The insect identified by Watson as *A. gracilis*, Feld., was incorrectly included by him in the genus *Apaustus* (P. Z. S. 1893, p. 97). Felder's species has a long crook to the antennal club, as is plainly indicated in the figure given in the 'Voyage of the Novara,' whereas in *Apaustus* the antennæ are very short and have a blunt club. For the genitalia of the male, see Tab. CIII. fig. 34.

b. Nervures beneath not paler than the rest of the surface.

4. *Callimormus corades*. (Tab. CIII. figg. 35, 36, 37, ♂.)

Ancyloxypha corades, Feld. Verh. zool.-bot. Ges. Wien, 1862, p. 477¹.

Cobalus decrepida, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 81 (1869)².

Apaustus tenera, Plötz, Stett. ent. Zeit. 1884, p. 161³.

Alis fuscis, stigmatæ concolore, anticis maculis tribus in linea obliqua, ea ad venam submedianam proxima elongata et frequenter indistincta, secunda magna, tertia minutissima (una quoque nonnunquam in cellula), punctis tribus subapicalibus in linea transversa (interdum obsoletis), omnibus ochraceis: subtus ut supra, anticis macula ad venam subcostalem absente; posticis griseis, fascia angusta angulata ultra cellulam margineque exteriore late fuscis; palpis et corpore subtus griseis.

♀ mari similis.

Hab. MEXICO, San Blas (*Baron*), Dos Arroyos, Rio Papagaio, Tierra Colorada, Rincon, La Venta, and Hacienda de la Imagen in Guerrero, Atoyac, Teapa (*H. H. Smith*), Jalapa (*coll. Schaus*), Orizaba (*H. J. Elwes*), Cuernavaca, Misantla, Vera Cruz (*F. D. G.*); GUATEMALA, San Gerónimo, Zapote (*Champion*).—SOUTH AMERICA to Venezuela³ and Brazil¹.

A very common Mexican insect, occurring on both the eastern and western slopes, whence we have a very long series sent us by Mr. Smith; we also have others from Guatemala, Venezuela, and the Amazons.

Mr. Walter Rothschild has kindly lent us Felder's type of *A. corades*, and with this

many of our specimens, including one from San Blas in Western Mexico, agree. Most of our examples from Mexico, however, have the spots on the upperside of the primaries less distinct or even absent, and the secondaries beneath much more obscurely coloured. Our figure of the insect is taken from the San Blas specimen. For the genitalia of the male, see Tab. CIII. fig. 37.

MNESTHEUS, gen. nov.

Amongst the small Tropical-American Pamphilinæ with a long, erect, slender terminal joint to the palpi there are several species nearly allied to *Callimormus*, but which have a brand on the primaries of the male formed of two short longitudinal streaks. *Phlebodes ittona*, Butl., is one of these forms, and we take it as the type of the present genus, which also includes *Apaustus virginus*, Möschl., from Surinam, *Cobalus ludens*, Mab., from Chiriqui, and one new species described below. The genitalia of the males of *M. ittona* and *M. cometho* are also very different in structure from those of any of the species of *Callimormus*.

The antennæ are as long as, or more than, half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is very long, slender, erect, and pointed. The primaries are narrow, rather blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one longer than the lower; the lower radial is depressed at the base (very slightly so in *M. cometho*); the first branch arises about the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are rounded at the anal angle; the cell is half (*M. cometho*), or more than half (*M. ittona*), the length of the wing; the discocellulars are transverse and very faint. The body is rather slender. The middle tibiæ are not spined and the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CIII. fig. 40) have a brand formed of two short longitudinal streaks covered by coarse scales, one filling the angle between the base of the second median segment and the first median branch, the other immediately below it.

a. Secondaries in part silvery beneath.

1. *Mnestheus ittona*. (Tab. CIII. figg. 38–41, ♂.)

Phlebodes ittona, Butl. Trans. Ent. Soc. 1870, p. 508¹.

Alis obscure fuscis, stigmatæ concolore, anticis maculis tribus in linea obliqua infra et ultra cellulam albis: subtus anticis ut supra, sed macula submediana obsoleta; posticis margine interno ipso, et fascia lata fere a margine interno (ad apicem curvata) et usque ad centrum marginis exterioris extendente (illic angustiore), argenteis aut flavo-argenteis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*Arcé, Ribbe*), Veraguas (*Arcé*).—VENEZUELA¹; BOLIVIA.

Dr. Butler described *P. ittona* from a male insect from Venezuela, which is now in

our collection, and we possess two others from the same country. We have likewise seen three specimens from the State of Panama. We notice that in some of the South-American examples the dark portions of the secondaries beneath are of a ferruginous tint, whereas those from Central America have these parts dark fuscous. For the genitalia of the male, see Tab. CIII. fig. 41.

b. Secondaries with the nervures beneath more or less yellow, those at the apex of the primaries similarly coloured.

2. *Mnestheus cometho*, sp. n. (Tab. CIII. figg. 42, 43, 44, ♂.)

Alis fuscis, stigmatæ concolore; anticis maculis tribus in linea obliqua infra et ultra cellulam, ea ad apicem proxima minima, punctis tribus minutissimis indistinctis subapicalibus in linea transversa, omnibus ochraceis; posticis fascia discali transversa fulva et area interna pilis coloris ejusdem vestitis: subtus pallidioribus, anticis maculis duabus inter ramos medianos, venis in costa, apice margineque externo, ochraceis, punctis subapicalibus in linea transversa, et macula inter ramos discoidales ad marginem externum, albidis; posticis venis omnibus ochraceo notatis, maculis indistinctis variis inter eas albido marmoratis.

♀ mari similis.

Hab. MEXICO, Teapa (*H. H. Smith*).

Four specimens. Very like *M. ludens*, but larger and with the oblique series of spots on the primaries formed by ochreous scales, instead of being hyaline. The underside, too, of the secondaries has whitish spots between the nervures. From *M. (Apaustus) virginus*, Möschl., from Surinam, the type of which is before us, it may be known by its larger size, and the much more distinctly spotted underside of both wings. For the genitalia of the male, see Tab. CIII. fig. 44.

3. *Mnestheus ludens*. (Tab. CIII. figg. 45, 46, ♂.)

Cobalus ludens, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxiii¹.

Alis fuscis, stigmatæ concolore; anticis maculis tribus in linea obliqua infra et ultra cellulam, una subtriangulari venam submedianam attingente, ochracea, duabus inter ramos medianos ad cellulæ finem, exteriore minore, una quoque minutissima subapicali in vena subcostali, flavo-hyalinis; posticis area discali pilis et squamis ochraceis indistincte notatis: subtus pallidioribus, anticis maculis ut supra, vena costali et venis apicem versus flavis; posticis venis omnibus (area discali interruptis) coloris ejusdem; corpore subtus albido.

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).—VENEZUELA?

We have to thank Dr. Staudinger for lending us the type of this species—a male, and we have another like it, from the same gentleman, labelled “Venezuela?” This insect is very like *M. cometho* on the upperside, except that the spots are hyaline, but the secondaries want the white spots beneath, and the pale yellow markings running along the nervures are interrupted at the end of the cell. Both the specimens we have examined have lost their palpi. The type is figured.

ARTINES, gen. nov.

We take *Thracides æpitus*, Geyer, as the type of this genus, which will also include a second species described below. Both insects have on the underside of the secondaries a black patch surrounded by blue spots, outside which is an ochreous ring. The male of *T. æpitus* has a conspicuous sagittiform brand, but this is altogether absent in *A. atizies*. The long terminal joint of the palpi distinguishes *Artines* from many of the allied genera. It agrees very nearly with *Eutocus* in the neuration of the wings, as well as in the form of the brand, but the primaries are more elongate, and the general coloration is very different, the structure of the genitalia also being peculiar. The two species are confined to Tropical America, one only entering our limits.

The antennæ are more than half the length of the costa, and have an elongate club, terminating in a long crook. The third joint of the palpi is long, erect, and pointed. The primaries are moderately produced, arched on the costa, and blunt at the tip; the cell is less than two-thirds of the costa; the discocellulars are strongly oblique, the upper one fully twice the length of the lower, the latter about as long as the third median segment; the lower radial is strongly depressed at the base; the first branch arises near the middle of the median nervure, the second a little before the lower angle of the cell. The secondaries are rounded at the anal angle; the cell is large and half the length of the wing; the discocellulars are very faint. The body is rather slender. The middle tibiæ are without spines, and the hind tibiæ have two pairs of spurs. The primaries of the male have a conspicuous sagittiform brand in the angle between the second median segment and the first median branch (this being absent in *A. atizies*), and the secondaries a fringe of long hairs along the upper edge of the abdominal fold in this sex.

We figure the fore wing and genitalia of a male of *A. æpitus*, see Tab. CIII. figg. 47, 48.

1. **Artines atizies**, sp. n. (Tab. CIII. figg. 49, 50, ♂.)

Alis obscure fuscis; anticis maculis duabus parvis in linea obliqua infra et ultra cellulam, duabus minutis apicem versus, albidis: subtus pallidioribus, anticarum apice et posticis schistaceo lavatis; anticis maculis ut supra, angulum analem versus albidis, ad apicem fascia angusta fusca lineolis pallidis radiantibus divisus; posticis punctis magnis nigris, ochraceo cinctis, et maculis quinque cæruleo ornatis et linea obscura limbata; anticis et posticis extrorsum anguste fusco marginatis.

♀ mari similis.

Hab. PANAMA, near the city (*J. J. Walker*).—VENEZUELA; GUIANA, Takutu River; BRAZIL, Espirito Santo; TRINIDAD.

We are indebted to Mr. J. J. Walker, R.N., for the only two Central-American examples we have of this species, though, unfortunately, they are in bad condition and both of the female sex.

This insect is so like *A. æpitus* (Geyer) that we have long confounded the two in

our collection; but on closer examination *A. atizies* proves to be without a brand on the primaries in the male (this being conspicuous in *A. æpitus*), the spots on the disc of these wings are much less distinct, and those on the underside of the secondaries are not so brightly coloured, and the genitalia of the males are very different in form, as will be seen from our Plate. For those of *A. atizies*, see Tab. CIII. fig. 50.

VIII. Antennæ very long*, usually at least two-thirds the length of the costa, with an elongate club, terminating in a very long crook; primaries of the male with or without a brand.

A. Body slender; hind tibiæ with two pairs of spurs.

A. Terminal joint of the palpi long and erect.

FALGA.

Falga, Mabilie, Ann. Soc. Ent. Fr. 1897, p. 211.

The type of this genus is *Carystus jeconia*, Butl. (= *C. abalus*, Mab.), from Venezuela; it also includes a remarkable new species from Honduras described below. These insects have very long wings, exceedingly elongate antennæ, a long, erect, terminal joint to the palpi, a slender body, and a brand on the primaries of the male formed of three longitudinal streaks, which are concealed by the larger scales.

The antennæ about reach the end of the cell, and have an elongate, slender club, terminating in a long crook. The palpi have the third joint long, erect, and pointed. The primaries are produced and rather narrow, blunt at the tip, with the costa arched at the base and straight towards the apex; the cell is about two-thirds the length of the costa; the discocellulars are moderately transverse, the upper one more than twice as long as the lower, the latter the same length as the third median segment; the lower radial is depressed at the base; the first branch arises from the middle of the median nervure, the second close to the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the cell is very large, occupying rather more than half the length of the wing; the discocellulars are very long and faint, the lower one oblique and nearly twice the length of the upper. The body is long and slender, as are also the legs. The middle tibiæ are without spines, the hind tibiæ have two pairs of spurs. The primaries of the male have a brand formed of three longitudinal pieces, which are more or less hidden by the larger scales clothing the surface of the wing: one extending nearly the whole length of the second median segment; one immediately beneath the first median branch; one above the submedian nervure a little before the middle.

We give a figure of the type of *F. jeconia* (Butl.), also others of the fore wing and genitalia of the male of this species, see Tab. CIV. figg. 1-4.

* Shorter in *Pyrrhopygopsis* (type *Pyrrhopyga socrates*, Mén.).

1. **Falga sciras**, sp. n. (Tab. CIV. figg. 5, 6, ♂.)

Alis nitente aureis, stigmatе occulto, anticis apice et margine externo late, venis ad basin et margine costali, nigro-fuscis; posticis marginibus, ad angulum analem latiore, coloris ejusdem: subtus anticis obscure fuscis, plaga magna subovali discali ochracea, apice fulvo, costæ dimidio basali flavo; posticis pallide flavis, maculis duabus discalibus minutis, interiore minore, fuscis, fascia indistincta margini externo subparalleli; corpore supra fusco, infra flavo.

♀ ignota.

Hab. HONDURAS (*Wittkugel, in coll. Staudinger*).

Dr. Staudinger has lent us a single male of this species from Honduras; it is nearly allied to *F. jeconia* (Butl.) from Venezuela, of which we have the type.

B. Terminal joint of the palpi short.

ENOSIS.

Enosis, Mabilie, Bull. Soc. Ent. Fr. 1889, p. ix.

M. Mabilie referred four Tropical-American species to this genus, one only of which, *E. quadrinotata*, Mab., from Chiriqui, is known to us, and we cannot say therefore whether they are really congeneric. He does not allude to the brand on the primaries of the male, distinctly visible in his type of *E. quadrinotata*, of which he notes the sex. This insect, from which the characters of the genus are here taken, is uniformly fuscous above, in this respect not differing from many other Central-American Pamphilinæ.

The antennæ are exceedingly elongate, about two-thirds the length of the costa, and have a slender elongate club, terminating in a long crook. The third joint of the palpi is short and bluntly conical. The primaries are moderately elongate, arched on the costa, and blunt at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about three times the length of the lower, the latter short and of the same length as the third median segment; the lower radial is strongly depressed at the base; the first branch arises before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are slightly lobed at the anal angle; the discocellulars are faint. The body is rather slender, the head large. The legs are very elongate; the middle tibiæ are without spines, the hind tibiæ have two pairs of spurs. The primaries of the male have an indistinct brand formed of three portions: (1) a triangular piece in the angle between the base of the second median segment and the first median branch; (2) a short longitudinal streak below this; (3) a similar streak in front of the submedian nervure before the middle.

1. **Enosis quadrinotata**. (Tab. CIV. fig. 7, ♂.)

Enosis quadrinotata, Mab. Bull. Soc. Ent. Fr. 1889, p. x¹.

Alis fuscis, stigmatе concolore: subtus pallidioribus, anticis margine interno angulum analem versus late grisescente, strigula indistincta venam medianam ad basin rami mediani secundi transeunte, puncto

minuto inter ramos medianos secundum et tertium, altero apicem propiore, flavidis; posticis punctis quatuor discalibus in linea curvata transversa, flavidis; anticis regione costali, apice et posticis omnino squamis ochraceis sparsim vestitis; palpis et corpore subtus pilis flavis et fuscis intermixtis; antennis ad clavæ basin ochraceo annulatis.

♀ mari similis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).

Dr. Staudinger has lent us two males and one female of this species, including the type. It is distinguishable amongst the similarly-coloured forms by the very long and slender antennæ, the indistinct treble brand on the primaries in the male, and the markings of the under surface. The position of the brand is indicated on the under-side of the primaries by a pallid interrupted streak.

B. Body stout; terminal joint of the palpi very short.

A. Hind tibiæ with a single pair of spurs.

CARYSTOIDES, gen. nov.

The single Tropical-American species referred to this genus, *Hesperia basochesi*, Latr., which just enters our limits, has the general facies of *Carystus*; but the third median segment of the primaries is nearly as long as the second, the antennæ are exceedingly elongate, and the hind tibiæ have only one pair of spurs.

The antennæ are fully two-thirds the length of the costa, and have an elongate, rather slender club, terminating in a long crook. The palpi are densely clothed with scales, the third joint very short and almost concealed. The primaries are elongate, somewhat pointed at the tip; the cell is narrow and considerably less than two-thirds the length of the costa; the discocellulars are oblique, the upper one about three times as long as the lower, the latter about one-fifth the length of the third median segment; the lower radial is strongly depressed at the base; the first branch arises far before the middle of the median nervure, the second at about the same distance from the lower angle of the cell (the three median segments thus being subequal in length). The secondaries are slightly lobed at the anal angle; the discocellulars are transverse, the lower one distinct. The body is robust, and (like the femora) very hairy beneath. The middle tibiæ are without spines, the hind tibiæ with a single pair of spurs. The primaries of the male are without trace of a brand.

The fore wing of the male is figured on Tab. CIV. fig. 10.

1. *Carystoides basochesi*. (Tab. CIV. figg. 8-11, ♂.)

Hesperia basoches, Latr. Enc. Méth. ix. p. 747¹.

Caristus basochesii, Möschl. Verh. zool.-bot. Ges. Wien, 1876, p. 332².

Alis fuscis, anticis maculis tribus magnis, una in cellula, secunda infra eam, tertia inter ramos medianos primum et secundum, interdum puncto subapicali, omnibus albo-hyalinis, ad apicem plus minusve albis;

posticis macula ultra cellulam et secunda minuta infra eam albo-hyalinis: subtus (nisi area interna anticarum) pallidioribus, ciliis posticarum (præsertim ad apicem) albescentibus; clava antennarum supra alba.

♀ nobis ignota.

Hab. HONDURAS (*Mus. Brit.*); PANAMA, Chiriqui (*ex Staudinger*). — COLOMBIA²; BRAZIL^{1 2}; TRINIDAD.

Dr. Staudinger has sent us three males of this species from Chiriqui, and we have others from Santa Marta, Trinidad, and Brazil. It is not unlike *Carystus claudianus*, but may at once be distinguished by the longer antennæ and the white apex to the primaries, as well as in other particulars described above. There is a good deal of variation in the underside of our specimens. The single male from Honduras in the British Museum has the spots on the disc of the secondaries very much reduced in size. For the genitalia, see Tab. CIV. fig. 11.

B. Hind tibiæ with two pairs of spurs.

LYCHNUCHOIDES, gen. nov.

There are two Tropical-American species very like *Lychnuchus*, the type of which is *Hesperia celsus*, Fabr. (= *Lychnuchus olenus*, Hübn.); but they differ from it in having a longer and wider cell in the primaries, the first and second median branches much less widely separated at their points of origin, and the brand in the male otherwise formed. One of these species, *Hesperia saptine*, G. & S., from Costa Rica, which we take as the type of the present genus, has the anterior tibiæ tufted in both sexes, but in the other, *Asticopterus ozias*, Hew., from Brazil * (the female only of which is known to us), this is not the case.

The antennæ are elongate, half the length of the costa, with a long club, terminating in a long crook. The palpi are densely clothed with scales, the third joint very short and almost concealed. The primaries are elongate, truncate at the tip, the costa arched to the middle, thence straight to the apex; the cell is very large, two-thirds the length of the costa; the discocellulars are very oblique, almost in a line with the third median segment, the upper one twice the length of the lower, the latter comparatively long; the lower radial is depressed at the base; the first branch arises about the middle of the median nervure, the second long before the lower angle of the cell; the third median segment is only a little shorter than the second. The secondaries are lobed at the anal angle; the lower discocellular is distinct. The body is stout, and (like the femora) very hairy beneath. The anterior tibiæ, in *L. saptine*, are thickly tufted with hair, especially in the male. The middle tibiæ are not spined, the hind tibiæ have two pairs of spurs. The primaries of the male have a >-shaped brand, the upper arm extending along the whole length of the second median segment, and

* Not Java, as stated by Hewitson.

the lower for some distance along the basal portion of the first median branch, just beneath which is a longitudinal streak.

The fore wing is figured on Tab. CIV. fig. 14.

1. **Lychnuchoides saptine.** (Tab. CIV. figg. 12-15, ♂.)

Hesperia saptine, Godm. & Salv. P. Z. S. 1879, p. 155¹.

Alis fuscis, stigmatibus paulo obscuriore, anticis fascia lata transversa a costa per cellulam angulum analem versus extendente, marginibus (præsertim interne) valde irregularibus, flavo-hyalinis; posticis margine costali usque ad apicem ochraceo: subtus ut supra, sed ad apicem grisescentioribus, posticis rufo-brunneo et griseo distincte nubilatis.

♀ mari similis.

Hab. COSTA RICA, Irazu, Rio Sucio (*Rogers*¹); PANAMA, Volcan de Chiriqui (*coll. Staudinger*).

We have six specimens of this species from Costa Rica, and Dr. Staudinger has lent us an example of it from Chiriqui. *L. saptine* closely resembles *Lychnuchus celsus* (Fabr.), from S. Brazil, but it is much larger and has a more irregular yellow band on the primaries, the apical portion of the costal margin of the secondaries is also yellow, and these wings beneath are differently coloured.

L. ozias (Hew.), from Brazil, is a nearly allied form. The type of *L. saptine* is figured, also the genitalia, for which see Tab. CIV. fig. 15.

TISIAS, gen. nov.

The species we refer to this genus are of large size, with very long antennæ, with long crook, a short terminal joint to the palpi, a very stout body, and a conspicuous treble brand on the primaries in the male. They have hyaline spots on both wings. We take *Proteides myna*, Mab., from Chiriqui, as the type, the genus also including *Cobalus quadratus*, H.-S., and at least one other South-American insect*. The form of the antennæ brings it near *Themesion*, *Turesis*, &c., while the brand is very like that of *Aides*.

The antennæ are half or more than half the length of the costa, and have a moderately long club, terminating in a long crook. The third joint of the palpi is very short and bluntly conical. The primaries are rather elongate, somewhat pointed at the apex, arched on the costa at the base, and almost straight on their outer margin to near the tip; the cell is less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one about three times as long as the lower, the latter much shorter than the third median segment; the lower radial is much depressed at the base; the first branch arises from the middle of the median nervure, the second a little before the lower angle of the cell, the latter being strongly curved

* In Dr. Staudinger's collection there is a very distinct unnamed species belonging here; it is from Merida, Venezuela.

downwards. The secondaries are shortly lobed at the anal angle, reaching about as far as the apex of the abdomen; the discocellulars are oblique, the lower one distinct, the upper one faint. The body is very robust. The middle tibiæ are spined, and the hind tibiæ have two pairs of long spurs. The primaries of the male have the portions of the brand placed thus: (1) a long, incomplete >-shaped piece, the upper arm extending along the greater part of the second median segment to beyond the base of the second median branch, and the lower along the first median branch; (2) a longitudinal streak below this; (3) a still longer streak just above the submedian nervure.

In the typical species, *T. myna*, the brand is somewhat modified to make room for the hyaline spots, this not being the case in *T. quadratus*.

1. **Tisias myna.** (Tab. CIV. figg. 16, 17, ♂.)

Proteides myna, Mab. Le Nat. 1889, p. 99, f. 1¹.

Alis nigro-fuscis, stigmatæ concolore, anticis maculis quatuor magnis, una in cellula externe excisa, tribus in serie obliqua infra eam, illa in medio maxima, albo-hyalinis; posticis macula parva in cellula, duabus margini externo propiore, coloris ejusdem: subtus ut supra, sed dilutioribus, anticis macula submediana majore et area costali ultra cellulam grisea.

♀ mari similis, sed maculis posticarum supra minoribus (interdum obsoletis).

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).

Dr. Staudinger has lent us a male and two females of this species. In general facies it is very like *Themesion certima* (Hew.). The type is figured.

THEMESION, gen. nov.

The Tropical-American species referred to this genus, of which *Hesperia certima*, Hew., is taken as the type, are of large size, with very long antennæ, with long crook, a robust body, broadly lobed secondaries, short upper spurs to the hind tibiæ (suggesting an affinity with *Carystoides*, in which they are altogether absent), and no marks of sexual distinction on the primaries of the male. They all have large hyaline spots on the primaries (the one in the cell being geminate or divided), and the base of the antennal club clothed with white scales. Unfortunately, most of the specimens before us are females, though there is a male of *T. certima* in the British Museum, and we have males of allied unnamed South-American forms that probably belong here. *T. certima* is very like *Tisias myna*, which, however, has a conspicuous treble brand on the fore wings in the male. *Hesperia noseda*, Hew. (= *Proteides brinoides*, Möschl.), belongs to the present genus, and *Carystus maroma* and *Proteides mæros*, Möschl., may also have to be included in it.

The antennæ are about, or rather more than, half the length of the costa, and have an elongate club, terminating in a very long crook. The third joint of the palpi is very short, blunt, and concealed, and clothed with scales. The primaries are elongate,

more or less pointed at the tip in the males, blunt in the females, with the costa arched towards the base; the cell is less than two-thirds the length of the costa; the discocellulars are strongly oblique, the lower one very short; the lower radial is greatly depressed at the base; the first branch arises before the middle of the median nervure, the second some distance before the lower angle of the cell. The secondaries are broadly lobed at the anal angle, but they do not extend beyond the apex of the abdomen; the discocellulars are oblique and faint. The body is robust. The middle tibiae are without spines; the hind tibiae have two pairs of spurs, the upper pair short or rudimentary.

The males of the above-mentioned unnamed South-American species in our collection have a pencil of long hairs above the abdominal fold of the secondaries. *Proteides mæros*, Möschl., differs somewhat from the other species in the neurulation of the primaries, as well as in having longer upper spurs to the hind tibiae.

1. *Themesion certima*. (Tab. CIV. figg. 18, 19, ♀.)

Hesperia certima, Hew. Trans. Ent. Soc. (3) ii. p. 493¹.

Eudamus lebbæus, Hew. Ann. & Mag. Nat. Hist. (4) xviii. p. 351².

Hesperia lota, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 81³.

Alis nigro-fuscis, anticis fascia obliqua vena mediana divisa, macula parva ultra eam punctoque subapicali (interdum absente), albo-hyalinis; posticis punctis minutis duobus (aut uno), interdum obsoletis, apicem versus coloris ejusdem: subtus dilutioribus, anticis area mediana obscuriore, posticis puncto ad cellulæ finem aliisque quatuor margini externo propiore (duobus albo-ocellatis) nigrescentibus.

♀ mari similis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*²).—VENEZUELA¹.

Hewitson's descriptions of *Eudamus lebbæus* and *Hesperia lota* appear to have been taken from the same specimen, a female, as the type of the latter lent us by Dr. Staudinger is ticketed *E. lebbæus* in what we believe to be Hewitson's own handwriting; this insect does not differ from the type of *Hesperia certima*, a male, in the British Museum. No locality was mentioned by Hewitson for *H. lota*³. Dr. Staudinger has also lent us two other females from Chiriqui.

This species, as already noted, is very like *Tisias myna* in general coloration, but differs from it in the absence of the submedian hyaline spot on the primaries and in having some small black spots on the underside of the secondaries. In the type of *Hesperia certima*, as in one of the females from Chiriqui, the primaries beneath have three minute dark spots towards the apex.

2. *Themesion orbis*, sp. n. (Tab. CIV. figg. 20, 21, ♀.)

♀. Alis fuscis, anticis maculis duabus subquadratis inter ramos medianos, proxima multo majore, una magna geminata in cellula, duabus subapicalibus, flavo-hyalinis, una quoque submediana elongata flavida; posticis ultra cellulam punctis tribus minutis in serie transversa flavis: subtus pallidioribus lilacino lavatis, maculis ut supra, anticis area mediana et posticis angulum analem versus obscurioribus; palpis et corpore subtus clavaque antennarum ad basin sordide flavis.

Hab. NICARAGUA, Chontales (*Belt*).

The above description has been taken from an imperfect worn female example. This insect has much the facies of *Hesperia sicania*, Hew., from Brazil, the type of which is a male; but in the latter the primaries are without a yellowish streak on the submedian nervure, the spots on the disc are differently placed, and there is only one minute subapical dot. It also greatly resembles *Turesis lucasi* and *T. theste* in general coloration; but the short upper spurs to the hind tibiæ exclude it from that genus.

TURESIS, gen. nov.

The Tropical-American species we place under this name have somewhat the appearance of *Carystus*, though they differ greatly in their general coloration. They have, however, much more elongate antennæ, these being fully two-thirds the length of the costa, as in *Carystoides* and *Orphe*. *Hesperia lucas*, Fabr. (as identified by Dr. Butler), is taken as the type, and in addition to the other Central-American form referred to it, we have an unnamed insect from South America that probably belongs here. All have large flavo-hyaline spots on the primaries.

The antennæ are rather more than two-thirds the length of the costa, and have an elongate slender club, terminating in a long crook. The third joint of the palpi is very short and almost concealed. The primaries are elongate, somewhat pointed at the tip, and arched on the costa at the base; the cell is a little less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one about three times as long as the lower, the latter of the same length as the third median segment; the lower radial is depressed at the base; the first branch arises at the middle of the median nervure, the second near the lower angle of the cell. The secondaries are slightly produced at the anal angle; the discocellulars are oblique and very faint. The body is robust. The middle tibiæ are not spined, and the hind tibiæ have two pairs of long spurs. There are no secondary sexual characters visible on either wing.

1. *Turesis lucasi*. (Tab. CIV. figg. 22, 23, ♂.)

Hesperia lucas, Fabr. Ent. Syst. iii. p. 339¹.

Telegonus lucas, Butl. Cat. Fabr. Diurn. Lep. p. 262, t. 3. f. 4².

Alis fuscis, anticis maculis tribus in linea obliqua, una parva elongata ad venam submedianam, secunda multo majore inter ramos medianos primum et secundum, tertia ultra eam, duabus in cellula interdum conjunctis, et duabus subapicalibus, exteriore minuta, omnibus flavo-hyalinis, posticis puncto ultra cellulam flavo: subtus ut supra, sed pallidioribus et rubescentioribus, macula submediana majore et albescente.
♀ mari similis.

Hab. PANAMA, Chiriqui (*ex Staudinger*).—VENEZUELA²; AMAZONS, Pará; BRAZIL²; ANTILLES¹.

Of this species there are two females in the British Museum, from Venezuela and

Brazil respectively, which have been identified by Dr. Butler as *Hesperia lucas*, Fabr., and we have seen seven others, including both sexes, six of these being from Chiriqui. *T. lucasi* is not unlike *Papilio salius*, Cram. Dr. Staudinger has sent us examples of it under the names of *Carystus hebon*, Mab., and *Goniloba complana*, H.-S., but it does not agree with the description of either of these insects.

2. **Turesis theste**, sp. n. (Tab. CIV. figg. 24, 25, 26, ♂.)

Alis fuscis, anticis maculis duabus inter ramos medianos, proxima multo majore, altera magna et geminata in cellula, una quoque parva subapicali, flavo-hyalinis: subtus ut supra, sed alis pallidioribus et rubescentioribus, posticis macula minuta ultra cellulam flava; palpis, corpore subtus et oculorum ambitu ochraceis. ♀ ignota.

Hab. COSTA RICA, Caché (*Rogers*).

A single male example sent us by Mr. Rogers from Costa Rica is all we know of this species. It is a close ally of *T. lucasi*, but differs from it in the absence of the streak on the submedian nervure of the primaries, both above and beneath, and there is only a single subapical spot on these wings; the secondaries, too, are immaculate above. For the genitalia of the male, see Tab. CIV. fig. 26.

MEGALEAS, gen. nov.

The single species we refer to this genus, *Hesperia syrna*, G. & S., from Costa Rica, is a very large and robust insect allied to *Thracides*, from which it differs in having a stouter crook to the antennæ, the primaries less pointed at the apex, the secondaries more rounded at the anal angle, and the brand in the male more oblique.

The antennæ are half the length of the costa, and have an elongate, gradually thickened club, terminating in a long, stout crook. The palpi have the third joint very short and concealed. The primaries are moderately elongate, and blunt at the tip; the cell is much less than two-thirds the length of the costa; the discocellulars are strongly oblique, the upper one three times the length of the lower, the latter about half the length of the third median segment; the lower radial is very much depressed at the base; the first branch arises a little before the middle of the median nervure, the second considerably before the lower angle of the cell. The secondaries are rounded at the anal angle; the lower discocellular is distinct, the upper one faint. The body is very robust. The hind tibiæ have two pairs of spurs. The primaries in the male have a linear, very oblique, interrupted brand extending from near the end of the second median segment to before the middle of the submedian nervure.

1. **Megaleas syrna**. (Tab. CIV. figg. 27, 28, ♂.)

Hesperia syrna, Godm. & Salv. P. Z. S. 1879, p. 155¹.

Alis fuscis, stigmatè pallidiore, anticis plaga magna partem distalem cellulæ occupante, altera obliqua a vena submediana ad cellulæ finem extendente, ramis medianis divisa, et margine interno, infra ramum medianum

primum valde exciso, maculis tribus in linea transversa subapicalibus, flavo-hyalinis; posticis macula minuta ad cellulæ finem, tribus ultra eam apicem propioribus, infima maxima, coloris ejusdem: subtus magis rubiginosis, maculis ut supra; unco antennarum rufo.

♀ ignota.

Hab. COSTA RICA, Irazu (*Rogers*).

The single worn example described by us in 1879 is still the only one we know.

LYCAS, gen. nov.

Hesperia argentea and *H. ceraca*, Hew., differ from nearly all the other American Pamphilinæ in the neuration of the primaries, and we are therefore compelled to place them in a genus by themselves*. In some respects *Lycas* approaches many of the Hesperiinæ so closely that it would be almost as well placed in that group. It resembles *Aides* and various other Tropical-American genera in having the underside of the secondaries more or less clothed with silvery scales. The two species are both widely distributed—*L. argenteus* ranging from Western Mexico to Brazil, and *L. ceraca* from Panama to Brazil.

The antennæ are very elongate, reaching nearly as far as the apex of the cell, and have a long and rather slender club, terminating in a long crook. The palpi are densely scaled, the third joint being very short, stout, and concealed. The primaries are somewhat pointed at the tip; the cell is two-thirds the length of the costa and greatly produced at the apex; the discocellulars are very oblique and in a line with the third median segment, the upper one considerably longer than the lower, the latter almost as long as the third median segment; the lower radial is depressed at its base; the first branch arises before the middle of the median nervure; the second median segment is only about half the length of the first, and less than twice the length of the third, which is unusually elongate. The secondaries are very slightly lobed at the anal angle; the discocellulars are oblique and distinct. The body is robust. The middle tibiæ are furnished with short spines, and the hind tibiæ have two pairs of spurs. The primaries of the male are without trace of brand. The fore wing of a male of *L. argenteus* is figured on Tab. CIV. fig. 29.

1. *Lycas argenteus*. (Tab. CIV. figg. 29, 30, ♂.)

Hesperia argentea, Hew. Trans. Ent. Soc. (3) ii. p. 487 (1866)¹; Exot. Butt. v., *Hesperia*, ff. 46, 47².

Alis fuscis, anticis ad basin et dimidio interno posticarum pilis ochraceo-fuscis vestitis, anticis maculis tribus in linea obliqua, una elongata ad venam submedianam, secunda majore inter ramos medianos primum et secundum, tertia ultra eam, una in cellula externe excavata, punctisque tribus in linea transversa subapicalibus, omnibus flavo-hyalinis; posticis margine costali apicem versus et macula submarginali

* We possess a single male specimen, from Guiana, of an unnamed insect closely allied to *Lycas*, but which has a conspicuous oblique brand on the primaries in the male; it belongs, however, to a different genus.

ochraceis: subtus anticis ut supra, apicem versus griseo tinctis, litura magna ad angulum analem albida; posticis argenteis, fascia lata a costæ medio ad angulum analem extendente, ad cellulæ finem angustiore et frequenter interrupta, læte castanea, ad basin cum margine externo coloris ejusdem, margine externo rufo-fusco; ciliis anticarum fuscis, iis posticarum ochraceis fusco-punctatis; abdomine subtus ochraceo.

♀ mari similis.

Hab. MEXICO, Rincon in Guerrero (*H. H. Smith*); GUATEMALA^{1 2}, Choctum (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*); PANAMA, Bugaba (*Champion*), Chiriqui (*mus. Staudinger*).—BRAZIL.

Hewitson described this species from a Guatemalan specimen, and we have numerous others from Central and South America. The peculiar coloration of the underside of the secondaries distinguishes it at once from all its allies, the following excepted. For the genitalia of the male, see Tab. CIV. fig. 30.

2. *Lycas ceraca*.

Hesperia ceraca, Hew. Trans. Ent. Soc. (3) ii. p. 488 (1866)¹; Exot. Butt. v., *Hesperia*, ff. 42, 43².

♀. Alis fuscis, pilis ochraceis vestitis, anticis dimidio costæ basali ferrugineo, macula in cellula magna externe excisa, tribus infra eam in serie obliqua, ea in medio maxima et bifida, punctisque tribus in linea transversa subapicalibus, flavo-hyalinis; posticis macula apicem versus et altera in margine costali flavis: subtus anticis triente basali fusca, apice et costa rubescentioribus, macula in costæ medio flava, litura submediana elongata albida; posticis castaneis ad marginem externum pallidioribus, fasciis duabus obliquis trans-euntibus argenteis, exteriori curvata, interiori recta et haud ad angulum analem extendente, margine interno quoque angulum analem versus argenteo.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*).—GUIANA, Surinam; BRAZIL, Rio Janeiro¹, Santa Catherina.

Of this fine species there is a single female specimen from Chiriqui, as well as two others of the same sex from more southern localities, in Dr. Staudinger's collection. It is allied to *L. argenteus* (Hew.), but differs from it in having the silvery markings on the underside of the secondaries reduced to two narrow fasciæ.

ORPHE, gen. nov.

This genus includes two very closely allied Tropical-American species, *Hesperia gerasa*, Hew. (= *Proteides subcordatus*, Mab.), which we take as the type, and a very similar form from south of our limits*. They are both insects of large size, with

* *Orphe vatinius*, sp. n. (Tab. CIV. figg. 31, 32, ♂.)

O. gerasæ similis, sed alis anticis maris stigmatum undulante (nec margine inferiore reflexo) tantum differt.

Hab. GUIANA; AMAZONS; E. PERU.

This species is almost exactly like *O. gerasa*, but differs from it in having the surface of the brand in the males very distinctly undulate, and there is no trace of the reflexed lower margin so prominent in the latter species. Of *O. vatinius* we have seen six males, and of *O. gerasa* two, one of which is Hewitson's type, and we therefore have no hesitation in separating them. For the genitalia of the male, see Tab. CIV. fig. 32.

very long antennæ, stout bodies, and a large and very conspicuous brand on the primaries of the male. *Orphe* is perhaps most nearly allied to *Lycas*, but the neuration and other particulars are different.

The antennæ are exceedingly long, reaching quite to the end of the cell, and have an elongate, rather slender club, terminating in a long crook. The palpi are densely clothed with scales; the third joint is very short and almost concealed. The primaries are elongate and have the costa arched from the base to the apex; the cell is two-thirds the length of the costa; the discocellulars are very oblique, almost in a line with the third median segment, the upper one being fully twice as long as the lower, the latter about half the length of the third median segment; the lower radial is depressed; the first branch arises before the middle of the median segment, the second far from the lower angle of the cell; the second median segment is a little more than twice the length of the third and not much longer than the first. The secondaries are slightly produced at the anal angle; the discocellulars are very oblique, the lower one distinct. The body is stout. The middle tibiæ are without spines, the hind tibiæ have two pairs of spurs. The primaries of the male have a very conspicuous oblique brand, extending from the base of the second median branch to near the submedian nervure, this being smooth, and bordered on the lower edge by a distinct ridge in *O. gerasa*, and strongly waved in *O. vatinius*.

We give a figure of the fore wing of *O. vatinius*, see Tab. CIV. fig. 31.

1. *Orphe gerasa*.

Hesperia gerasa, Hew. Ex. Butt. v., *Hesperia*, ff. 6, 7 (♂)¹.

Proteides subcordatus, Mab. Le Nat. 1889, p. 99, f. 3 (nec Herr.-Schäff.)².

Proteides milo, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxvii³.

Alis fuscis, stigmatæ obscuriore, anticis maculis duabus minutis in cellula, tertia transversa inter ramos medianos secundum et tertium, quarta minuta apicem propiore, punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis: subtus rubescentioribus, anticis maculis ut supra, area mediana obscuriore, margine interno pallidiore, posticis fascia lata transversa ultra cellulam rubida, punctoque discali albedo; antennarum clava ad basin albo annulata.

♀ mari similis, sed maculis omnibus majoribus aliisque duabus, una lunulata inter ramos medianos primum et secundum maxima, altera minore in venam submedianam posita, albo-hyalinis: subtus grisescentioribus et maculis tribus in linea curvata ultra cellulam albidis.

Hab. PANAMA, Bugaba (*Champion*), Chiriqui² (*ex Staudinger*).—BRAZIL, Maranhã¹.

Dr. Staudinger has sent us specimens of both sexes of *Proteides subcordatus*, Mab., from Chiriqui, whence we also have a female example: the male does not differ from the type of *Hesperia gerasa*, Hew., this being of the same sex.

M. Mabille³ subsequently changed the specific name *subcordatus* to *milo*, on account of there being an earlier *Proteides subcordatus*, H.-S.

DAMAS, gen. nov.

A single Tropical-American species, *Goniloba clavus*, H.-S. (= *Proteides ampyx*, Mab.), is referred to this genus. *Damas* is allied to *Thracides*, the type of which is *T. phidon* (Cram.), but differs from it in having a conspicuous and very dissimilarly shaped brand on the primaries of the male.

The antennæ are more than half the length of the costa, and have a moderately elongate club, terminating in a long crook. The third joint of the palpi is very short and concealed. The primaries are elongate, somewhat pointed at the tip, arched on the costa and straight on the outer margin; the cell is less than two-thirds the length of the costa; the discocellulars are very oblique, the upper one longer than the lower, the latter longer than the third median segment; the lower radial is slightly depressed at the base; the first branch arises before the middle of the median nervure, the second a little before the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are very oblique, the upper one very faint. The body is robust. The femora are very hairy. The middle tibiæ are furnished with spines, the hind tibiæ with two pairs of spurs. The primaries of the male have a conspicuous brand formed of two pieces, the upper one somewhat triangular and extending along the second median segment to the base of the second median branch, the other in the form of a short longitudinal streak immediately below it.

1. *Damas clavus*. (Tab. CV. figg. 1-4, ♂.)

Goniloba clavus, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 75¹.

Proteides ampyx, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxvii (♂)².

Alis fuscis, stigmatè grisescente, anticis macula elongata in cellula, tribus infra eam, una submediana (interdum obsoleta), secunda inter ramos mediano sprimum et secundum sagittiformi, tertia ultra eam subquadrata, punctisque tribus in serie transversa subapicalibus (interdum absentibus), flavo-hyalinis: subtus fere ut supra, sed anticis dimidio apicali et posticis (nisi margine interno) violaceo tinctis.

♀ nobis ignota.

Hab. PANAMA, Chiriqui² (*Trötsch, in mus. Staudinger*).—AMAZONS, Pará.

Dr. Staudinger has lent us a male specimen (the type) of *P. ampyx*, Mabilie, from Chiriqui, which agrees with three others from South America in our collection; one of these we believe to be the type of Herrich-Schäffer's *Goniloba clavus*. We also have another male from the Amazons, evidently belonging here, but the spot in the cell of the primaries is not visible on the upperside.

Our figures are taken from South-American examples. For the genitalia of the male, see Tab. CV. fig. 4.

ORSES, gen. nov.

This genus, of which we take *Hesperia cynisca*, Swains., as the type, is a very remarkable one, inasmuch as the sexes have the primaries not only dissimilarly marked,

but the neuration is also different, this being caused in the males by an interference of the brand. The tibiæ of all the legs are red, the antennæ are extremely elongate, and the secondaries beneath have one or two whitish transverse bands. In addition to *H. cynisca*, *Orses* includes *H. itea*, Swains., and one new species described in this work*. All are Tropical-American, two of them entering our region.

The antennæ are exceedingly elongate, fully two-thirds the length of the costa, and have a very long, rather slender club, terminating in a long crook. The palpi are densely scaled, the third joint very short and bluntly conical. The primaries are elongate and pointed at the tip, the costa arched; the cell is less than two-thirds the length of the costa, and has a distinct recurrent nervure towards the end of the third median segment; the discocellulars are oblique, the upper one nearly twice as long as the lower; the lower radial is depressed at the base; the first branch arises considerably before the middle of the median nervure, the second in the male far from, in the female near, the lower angle of the cell (the third median segment in the male being a little longer than the second, and in the female quite short); the submedian nervure is slightly angulated at the middle in the male. The secondaries are more or less produced at the anal angle (strongly so in *O. iricolor*); the discocellulars are very oblique, the lower one distinct. The body is stout. The middle tibiæ are without spines; the hind tibiæ have two pairs of spurs. The primaries of the male (Tab. CV. fig. 5) have a broad, oblique brand extending from the base of the second median branch to a little below the first median branch, and they are also furnished with some long hairs beneath the first median segment.

1. *Orses cynisca*. (Tab. CV. figg. 5, 6, ♂.)

Hesperia cynisca, Swains. Zool. Ill. i. t. 40. figg. (♂ ♀)¹.

Carystus cynisca, Staud. Exot. Schmett. p. 296, t. 99. fig. (♂)².

♂. *Hesperia catina*, Hew. Trans. Ent. Soc. (3) ii. p. 492 (Feb. 1866)³.

Goniloba poyas, Reak. Proc. Acad. Phil. 1866, p. 337 (♂) (Nov.)⁴.

Alis fuscis, stigmatæ grisescens, anticis macula magna subquadrata in cellula, duabus inter ramos medianos, infima transversa, altera subtriangulari, flavo-hyalinis: subtus fere ut supra, sed rufo-tinctis, anticis in regione costali ultra maculam cellularem flavis; posticis quoque margine externo (nisi ad angulum analem) pallide flavis; abdomine subtus ochraceo; ciliis posticarum flavis; tibiis rubescentibus.

♀ mari similis, sed anticis fascia obliqua venis divisa albida, posticis ad apicem albo notatis: subtus posticis margine externo albido latiore; ciliis pallide flavis.

Hab. MEXICO, Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus*), Vera Cruz (*Edwards*⁴); NICARAGUA, Chontales (*Belt*); PANAMA², Bugaba (*Champion*), Chiriqui (*mus. Staudinger*), Veraguas (*Arcé*).—SOUTH AMERICA to Brazil^{1 3}, Amazons³, and Trinidad.

Apparently a common species in Tropical South America, whence we have a long

* *Hesperia crotona*, Hew., from Venezuela, will probably form the type of a nearly allied genus; it resembles *H. cynisca*, Swains., in having the primaries dissimilarly marked in the two sexes, and also in the rufous tibiæ, but the form of the brand is very different.

series. From within our limits we possess five male specimens only; the sexes are remarkably different.

Hesperia itea, Swainson, is the nearest allied form we are acquainted with. We figure the fore wing of a male of *O. cynisca*, also the genitalia, for which see Tab. CV. fig. 6.

2. *Orses iricolor*, sp. n. (Tab. CV. figg. 7, 8, ♂.)

Alis fuscis, stigmatе grisescente, anticis macula magna in cellula et duabus minoribus inter ramos medianos flavo-hyalinis, ad basin et posticis fere omnino viridi-cæruleo tinctis: subtus fuscis, purpureo lavatis, anticis area mediana obscuriore, maculis ut supra, in costa maculam cellularem attingente et apici propiore, flavo notatis; posticis fasciis duabus obliquis subparallelibus, una a margine costali juxta apicem ad marginem externum, altera basi propiore angulum analem versus, extendentibus, et margine interno ipso, sulphureis; capite et corpore supra viridibus, cæruleo tinctis; ciliis ad angulum analem anticarum, et posticis omnino, griseis; tibiis rufis.

♀ ignota.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

Of this very fine species there is a single male example in Dr. Staudinger's collection. It is allied to *O. cynisca* (Swains.), and has the yellow spots of the primaries similarly shaped and placed, but it may easily be separated from that species by the greenish-blue sheen on the upperside of the wings and by the pale longitudinal stripes on the underside of the secondaries; the secondaries, too, are more produced at the anal angle.

THRACIDES.

Thracides, Hübner, Verz. bek. Schmett. p. 105 (1816) (part.); Watson, P. Z. S. 1893, p. 122.

The type of *Thracides*, *Papilio phidon*, Cram., has a very narrow, oblique, interrupted band on the primaries in the male, but in several other species which we include here this is absent. They are all Tropical-American forms of large size, and many of them have the base of the wings and the upperside of the body shot with blue.

The antennæ are very long, nearly reaching the end of the cell, and have an elongate club, terminating in a long crook. The palpi are densely clothed with scales; the third joint is very short and almost concealed. The primaries are elongate and somewhat pointed; the cell is nearly two-thirds the length of the costa; the discocellulars are very oblique, the upper one more than twice the length of the lower, the latter a little shorter than the third median segment; the first branch arises considerably before the middle of the median nervure, the second near the lower angle of the cell. The secondaries are produced at the anal angle; the discocellulars are very oblique, the lower one quite distinct. The body is very robust. The middle tibiæ are spined in *T. phidon*, unarmed in *T. longirostris* and others; the hind tibiæ have two pairs of spurs. The primaries of the males of *T. phidon* and *T. aurifer* have

a linear, interrupted, oblique band extending from the base of the second median branch to the middle of the submedian nervure, this being absent in the other species; those of *T. molion* have a dense fringe of long hairs beneath the submedian nervure in the male.

We figure the fore wing of *T. phidon* to show the neuration; see Tab. CV. fig. 9.

a. The upperside of the body and the base of the wings shot with blue.

a'. Primaries branded in the male, and with hyaline spots.

1. *Thracides phidon*. (Tab. CV. figg. 9, 10, ♂.)

Papilio phidon, Cram. Pap. Exot. t. 245. ff. F. G¹.

Thracides phidon, Wats. P. Z. S. 1893, p. 122².

Alis fuscis, stigmatē pallidiore, triente basali nitide cæruleo, anticis maculis duabus in cellula, una subovali, altera minuta apici propiore (illa interdum absente), tertia majore curvata et elongata inter ramos medianos primum et secundum, quarta transversa inter ramos medianos secundum et tertium, omnibus albo-hyalinis; posticis ad basin pilis cæruleis ornatis: subtus læte rubiginosis, anticis ad apicem gilvis, bitriente costali et plaga magna supra venam submedianam albis, aliter maculis ut supra; posticis ad basin albidis, ultra cellulam maculis quatuor aut quinque in serie irregulari, flavis; corpore supra nitente cæruleo, subtus ochraceo; ciliis anticarum ad angulum analem et posticis omnino ochraceis.

Hab. PANAMA, Chiriqui, Calobre, Veraguas (*Arcé*).—COLOMBIA; GUIANA¹; NORTH BRAZIL.

Our collection contains eight specimens of this fine species, all males, three of them being from the State of Panama. For the genitalia of the male, see Tab. CV. fig. 10.

b'. Primaries not branded in the male*.

a''. Primaries with hyaline spots.

2. *Thracides deceptus*. (Tab. CV. figg. 11, 12, ♀.)

Carystus deceptus, Butl. & Druce, Cist. Ent. i. p. 112¹.

♀. Alis fuscis, triente basali nitide cæruleo, anticis maculis tribus magnis in linea obliqua, una in cellula, secunda inter ramos medianos primum et secundum, tertia angulo anali propiore, alia inter ramos medianos secundum et tertium, omnibus hyalinis: subtus pallidioribus et rufescentioribus, anticis costa et apice griseis, posticis ad basin præsertim quoque griseis, angulum analem versus ochraceo suffusis; corpore supra cæruleo; palpis subtus albidis; cruribus et abdomine subtus ochraceis; ciliis ad angulum analem anticarum et posticis omnino coloris ejusdem.

Hab. COSTA RICA (*Van Patten*¹).

This species, the type of which, a female, is now in our collection, perhaps most nearly resembles *T. phidon* (Cramer), but differs from the latter in having much larger hyaline spots on the primaries. As the male is unknown, its true position is doubtful.

* The male of *T. deceptus* has yet to be discovered.

3. *Thracides luda*. (Tab. CV. figg. 13, 14, 15, ♂.)

Hesperia luda, Hew. Ann. & Mag. Nat. Hist. (4) xix. p. 80¹.

Proteides hundurensis, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxv (♀)².

Alis obscure fuscis, anticis ad basin cæruleis, maculis tribus in linea obliqua, una supra venam submedianam, secunda majore inter ramos medianos, tertia inter ramos secundum et tertium, alia geminata in cellula, hyalinis; posticis cæruleo tinctis: subtus nigro-fuscis, anticis maculis ut supra, sed infima elongata et multo majore, margine exteriori pallidiore; posticis puncto albido ad cellulæ finem, margine externo et ad angulum analem griseis; ciliis ad angulum analem anticarum et posticis omnino albidis; capite et corpore supra viridi-cæruleis; palpis subtus griseis.

♀ nobis ignota.

Hab. HONDURAS (*mus. Staudinger*²), San Pedro Sula (*Wittkugel*); PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*¹), Veraguas (*Arcé*).—GUIANA.

Three males of this species, two from within our limits and one from Guiana, are before us. *T. luda* differs from *T. phidon* in the absence of the brand on the primaries of the male; the blue colour on the upper surface is less brilliant, there is a large geminate hyaline spot in the cell of the primaries, and the underside of the body and the legs are darker. For the genitalia of the male, see Tab. CV. fig. 15.

4. *Thracides molion*, sp. n. (Tab. CV. figg. 16, 17, 18, ♂.)

Alis fuscis, triente basali nitide cæruleo, anticis infra venam submedianam pilis longis vestitis, maculis duabus magnis, una geminata in cellula, altera subquadrata infra eam inter ramos medianos primum et secundum, punctisque duobus in linea transversa subapicalibus, omnibus hyalinis: subtus colore fusco pallidiore, maculis ut supra, anticis regione costali et plaga angulum analem versus albidis, posticis quoque ad costæ basin late albis; capite et corpore supra viridi-cæruleis, subtus ochraceo-fuscis; palpis et corpore subtus pallide ochraceis.

♀ ignota.

Hab. MEXICO, Teapa (*H. H. Smith*).

Mr. H. H. Smith has sent us a single male example of this species from Eastern Mexico. *T. molion* is not unlike *T. cincia* (Hew.), from Pará, but the blue is of a lighter tint above and the base of the costa of the secondaries beneath is white; the primaries have a dense fringe of very long hairs beneath the submedian nervure, a mark of the male sex. *T. bræscia* (Hew.), from Pará, is another allied form, but it has no subapical spots on the primaries and the wings are not metallic blue at the base. For the genitalia, see Tab. CV. fig. 18.

5. *Thracides seron*, sp. n. (Tab. CV. figg. 19, 20, ♂.)

Alis fuscis, triente basali nitente cæruleo, anticis maculis tribus in linea obliqua infra et ultra cellulam, infima fere obsoleta, secunda inter ramos medianos primum et secundum transversa et maxima, hyalinis: subtus rubiginosis, anticis area mediana obscuriore, maculis ut supra, sed infima majore, posticis ad basin nitide cæruleis; corpore supra et subtus coloris ejusdem; ciliis ad angulum analem anticarum et posticis omnino ochraceis.

♀ ignota.

Hab. HONDURAS (*Wittkugel, in mus. Staudinger*).

Dr. Staudinger has lent us a male example of this species, which is all we have seen of it. *T. seron* somewhat resembles *T. phidon*, but has only two conspicuous hyaline spots on the primaries and the underside is much more uniformly coloured; the brand, too, is absent.

b''. Primaries without hyaline spots.

6. *Thracides henricus*. (Tab. CV. figg. 21, 22, 23, ♂.)

Telegonus henricus, Staud. Verh. zool.-bot. Ges. Wien, 1876, p. 112¹.

Telegonus mardonius, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 207².

Alis nigro-fuscis, ad basin nitide cæruleis, posticis plica abdominali ad basin penicillatis: subtus brunneis, anticis ad angulum analem flavidis, posticis margine externo usque ad angulum analem læte flavis; ciliis ochraceis; capite et corpore supra viridi-cæruleis, subtus obscuris, viridi tinctis.

♀ mari similis.

Hab. PANAMA, Chiriqui¹ (*Ribbe & Trötsch, ex Staudinger*).

Three males and one female of this species are before us, all from Chiriqui, whence Dr. Staudinger's type was obtained. Möschler² merely gives Central America, without precise locality, for his *T. mardonius*. Superficially, *T. henricus* closely resembles *Telegonus chiriquensis*, Staudinger (*anteà*, p. 308), but the neuration shows that it belongs to the Pamphilinæ and not to the Hesperiinæ. There is no brand on the primaries in the male, but there is a pencil of hairs at the base of the abdominal fold of the secondaries in this sex. For the genitalia of the male, see Tab. CV. fig. 23.

7. *Thracides aroma*. (Tab. CV. figg. 24, ♂; 25, 26, ♀.)

Hesperia aroma, Hew. Descr. Sp. Hesp. p. 24 (1867)¹.

Alis fuscis, ad basin cum corpore nitide cæruleo-viridibus: subtus anticis costæ dimidio basali late coloris ejusdem, margine interno late albo; posticis fascia obscuriore discali ad cellulæ finem; ciliis griseis.

♀ mari similis.

Hab. COSTA RICA, Santa Clara valley (*Zurcher*).—AMAZONS, Santarem, Pará¹.

We have a single female of this species from Costa Rica, agreeing with others from Pará, whence Hewitson's type was obtained. It is a close ally of *T. henricus*. The genitalia are figured from a South-American male; see Tab. CV. fig. 24.

b. The upperside of the body and the base of the wings without metallic lustre.

c'. Primaries branded in the male, and with numerous hyaline spots, their distal half with a steely lustre; secondaries with golden spots beneath.

8. *Thracides aurifer*. (Tab. CV. figg. 27, 28, ♂.)

Hesperia aurifer, Godm. & Salv. P. Z. S. 1879, p. 155¹.

Alis nigro-fuscis, stigmatate grisescente, anticis dimidio distali nitente chalybeo, maculis quinque in serie obliqua infra et ultra cellulam, una ad venam submedianam, secunda inter ramos medianos primum et secundum permagna et cordiformi, tertia inter ramos secundum et tertium, duabus minutis ultra eos, duabus in cellula, punctisque tribus in linea transversa subapicalibus, omnibus albo-hyalinis: subtus rufo-brunneis,

anticis area mediana ad marginem internum extendente, nigro-fuscis, maculis ut supra; posticis maculis septem aureis, una ad cellulæ finem, sex in serie transversa ultra eam, margine interno ferrugineo; oculorum ambitu rufo; abdomine subtus flavo; ciliis posticarum alterne fuscis et albis.

♀ ignota.

Hab. COSTA RICA, Irazu (*Rogers*¹).

This fine species was described by Salvin and myself twenty years ago from a single male example from Costa Rica, and it still remains unique. We know nothing closely allied to *T. aurifer*, and place the insect in *Thracides* with some reserve. The primaries have a steely lustre on their distal half, a character we omitted to note in the original description, this peculiarity being also shown in the two species of the genus *Cæliades*, to which, however, the present insect is not very nearly allied.

d'. Primaries not branded in the male *.

c''. Primaries with hyaline or flavo-hyaline spots, the secondaries immaculate above.

9. **Thracides polles**, sp. n. (Tab. CV. figg. 29, 30, ♀.)

♀. Alis fuscis, maculis tribus in linea obliqua, una ad venam submedianam, secunda inter ramos medianos primum et secundum maxima et externe valde angulata, tertia ultra eam, una elongata in cellula, punctisque duobus aut tribus in linea obliqua subapicalibus, flavo-hyalinis: subtus anticis ut supra, sed pallidioribus, area mediana obscuriore, angulum analem versus litura magna flavescente; posticis (margine costali excepto) griseis, maculis tribus indistinctis discalibus albidis; capite et corpore subtus griseis.

Hab. NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*coll. Staudinger*), Bugaba (*Champion*).—BRAZIL.

We have seen five specimens of this species, all females, three being from within our limits. It is easily separable from most of its allies by the grey underside of the secondaries. In one of Dr. Staudinger's Brazilian examples the spots on the primaries are much reduced in size, those near the apex and the one in the cell being absent. In the absence of the male, we refer this insect to *Thracides* with some hesitation.

10. **Thracides placens**. (Tab. CVI. figg. 1, 2, ♀.)

Carystus placens, Butl. Trans. Ent. Soc. 1874, p. 435¹.

Proteides laurens, Mab. Compt. rend. Soc. Ent. Belg. xxxv. p. lxxxv².

Alis nigro-fuscis, anticis ad basin ferrugineis, maculis quatuor in linea obliqua, una ad venam submedianam, secunda majore inter ramos medianos primum et secundum, tertia ultra eam, et quarta minutissima apici propiore, macula quoque in cellula, duabus in linea transversa subapicalibus, omnibus albo-hyalinis; posticis (nisi ad marginem costalem) ferrugineis: subtus læte purpureo-fuscis, maculis ut supra, anticis apice griseo notatis, dimidio basali areæ costalis et posticis ad basin late albidis; posticis ad medium marginis interni flavis, angulum analem versus ferrugineis; palpis et corpore subtus sordide albis; ventre ferrugineo.

♀ mari similis.

Hab. PANAMA, Volcan de Chiriqui (*Champion*), Chiriqui².—COLOMBIA¹.

Dr. Butler's type of this species, a male, is in our collection, and we have a female of it from Chiriqui, whence Mabilles's specimen of *Proteides laurens* was obtained.

* The male of *T. polles* is unknown.

d''. Primaries with large, the secondaries with small *, flavo-hyaline spots.

11. **Thracides salius.** (Tab. CVI. figg. 3, 4, 5, ♂.)

Papilio salius, Cram. Pap. Exot. t. 68. f. E¹.

Hesperia antoninus, Latr. Enc. Méth. ix. p. 746².

Goniloba mathiolus, Herr.-Schäff. Prodr. Syst. Lep. iii. p. 74³.

Alis fuscis, anticis dimidio basali costæ et marginis interni pilis fulvis vestitis, maculis quatuor in linea obliqua, una ad venam submedianam quadrata, secunda inter ramos medianos primum et secundum majore, tertia ultra eam et quarta minutissima apici propiore, una in cellula subquadrata, duabus parvis in linea transversa subapicalibus, posticis maculis duabus aut tribus ultra cellulam, omnibus flavo-hyalinis: subtus fere ut supra, sed anticis costæ dimidio basali ochraceo, area mediana obscuriore, ad apicem purpureo-griseis; posticis dimidio basali cinereo-griseis, ad apicem late purpureo tinctis; palpis et corpore subtus albidis.

♀ mari similis.

Hab. MEXICO, Acaguizotla in Guerrero (*H. H. Smith*), Rinconada (*coll. Schaus*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Polochic Valley (*F. D. G. & O. S.*); NICARAGUA, Chontales (*Belt*), Matagalpa (*Richardson*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Chiriqui (*Ribbe, ex Staudinger*), Veraguas (*Arcé*).—SOUTH AMERICA to the Argentine Republic.

Two species are generally confused under the name of *T. salius* (Cram.). The examples we refer to it agree very well with Cramer's figure and description; the others, which we separate under the name of *T. longirostris* (Sepp), constantly differ in having the hyaline spot in the cell of the primaries comma-shaped.

There is considerable variation in the number of the subapical spots in the females of both species; in *T. salius* they vary in number from one to three, and we have one South-American example in our series in which the spots on the secondaries are altogether wanting. On the underside, the apex of the primaries and a great portion of the secondaries, the anal angle excepted, usually have a bluish or greenish tinge in certain lights; the secondaries, too, are constantly whitish at the base. Dr. Staudinger has sent us a specimen of the present species under the name of *G. mathiolus*, Herr.-Schäff.

The South-American *Hesperia fischeri*, Latr., is another closely-allied form, but differs in having the spots white instead of yellow, those on the secondaries being larger, and these wings have not the pale base beneath.

We figure a male from Bugaba, also the genitalia, for which see Tab. CVI. fig. 5.

12. **Thracides longirostris.** (Tab. CVI. figg. 6, 7, 8, ♂; 9, ♂, var.)

Papilio longirostris, Sepp, Surin. Vlind. i. t. 27¹.

Hesperia fischeri, Hew. Exot. Butt. v., *Hesperia*, f. 10² (nec Latreille).

T. salio similis, sed macula in cellula anticarum litteram C formante: subtus anticis ad apicem et dimidio distali frequenter rubescentioribus.

* Except in some of the varieties of *T. salius* and *T. longirostris*.

Hab. MEXICO, Coatepec (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*), Cordova (*Rümeli*); GUATEMALA, San Isidro, Panima (*Champion*), Volcan de Santa Maria (*Richardson*); NICARAGUA, Chontales (*Belt*); COSTA RICA, San Francisco, Caché, Irazu (*Rogers*); PANAMA, Bugaba, Veraguas, Calobre (*Arcé*), Chiriqui (*Ribbe*), Lion Hill (*M. Leannan*).—SOUTH AMERICA to Brazil; TRINIDAD.

This insect is commoner than *T. salius*, but has a similar distribution. Our series includes about sixty specimens, in all of which the C-shaped spot in the cell is prominent; in one or two cases it is divided into two. The variation in size is very great, some of the males being extremely small and several of the females exceedingly large—*T. longirostris*, in fact, varying more in this respect than any other Hesperiid we are acquainted with.

The spots on the secondaries are variable in number, as in *T. salius*, and occasionally are absent. In the female the outer spot on the secondaries is often large and quadrate, which does not appear to be the case in any of the varieties of *T. salius*. We have a single male from Chiriqui which has the underside of a uniform fuscous colour, with the costa and apex of the primaries, and the secondaries, except along the inner margin, strongly suffused with purple (fig. 9); we look upon this as an extreme variety, since having dissected the genitalia we find that they agree with those of the present species.

Hewitson has wrongly figured this species as the female of *Hesperia fischeri*, Latr., of which we possess examples of both sexes.

We figure a typical male from Atoyac, also a variety from Chiriqui, and the genitalia, for which see Tab. CVI. fig. 8.

13. *Thracides chiomara*. (Tab. CVI. fig. 10, ♂.)

Hesperia chiomara, Hew. Exot. Butt. v., *Hesperia*, f. 19 (♂)¹.

Talides chiomara, Wats. P. Z. S. 1893, p. 122².

Alis fuscis, anticis maculis tribus in linea obliqua, una ad venam submedianam, secunda magna et sublunata, tertia ultra eam, macula in cellula subquadrata, duabus vena tantum divisa subapicalibus, omnibus flavo-hyalinis; posticis maculis duabus ultra cellulam quoque flavo-hyalinis: subtus rubescentioribus, maculis ut supra, anticis area mediana obscure fusca.

♀ nobis ignota.

Hab. PANAMA, Chiriqui (*ex Staudinger*).—GUIANA; AMAZONS¹.

Our collection contains four males of this species, one only of which is from Central America. They agree well with Hewitson's figure. *T. chiomara* is very like *T. salius*, but differs from it in having the costa and apex of the primaries and the secondaries, except at the anal angle, reddish-brown beneath. The genitalia also differ in form, see Tab. CVI. fig. 10.

e''. Primaries immaculate above, the secondaries more or less yellow at the anal angle.

14. ***Thracides xanthura***, sp. n. (Tab. CVI. figg. 11, 12, 13, ♂.)

Alis fuscis, posticis margine externo angulum analem versus plus minusve flavo-notatis: subtus rubescen-
tioribus, anticis area mediana ad marginem internum fusca, ultra cellulam purpureo suffusis, margine
externo ad angulum analem anguste flavo; posticis disco cellulari late purpureo tinctis, margine externo
ultra eum, et ad angulum analem late, flavis, ad angulum ipsum striga fusca notatis; ciliis posticarum
flavis; palpis subtus griseis; abdomine subtus flavo.

♀ mari similis, sed posticis ad angulum analem late flavo marginatis: subtus striga posticarum absente.

Hab. BRITISH HONDURAS, Corosal (*Roe*); HONDURAS, San Pedro Sula (*Wittkugel*);
PANAMA, Bugaba (*Champion*), Chiriqui (*Trötsch, in mus. Staudinger*).—COLOMBIA.

Dr. Staudinger has lent us for examination three examples of this very distinct species—a pair from Chiriqui and a male from farther south; Mr. Champion obtained two specimens of it at Bugaba; and we have two males from Honduras.

This insect is very like *Rhinthon epaphus*, but the absence of the brand on the primaries of the male, the longer crook to the antennæ, and the yellow border to the anal angle of the secondaries sufficiently distinguish it. The yellow coloration varies in extent, being reduced to a narrow marginal line in the single male from Corosal; but in the females it is always greatly extended. *T. xanthura* will probably have to be removed from the genus *Thracides*, but for the present it can remain here. For the genitalia of the male, see Tab. CVI. fig. 13.

PERICHARES.

Perichares, Scudder, Rep. Peabody Ac. Sci. iv. p. 81 (1872); Watson, P. Z. S. 1893, p. 122.

The type of this genus is *Papilio coridon*, Fabr., and it includes *Telegonus lotus*, Butl., and various other Tropical-American species. *Perichares* is very closely allied to *Talides*, but has more produced primaries, a longer cell, and the third median segment is nearly half the length of the second. In both genera there is a conspicuous oblique brand on the primaries of the male. In *P. lotus* the hyaline spots on the primaries are different in number and position in the two sexes.

The antennæ are very long, nearly reaching the end of the cell, and have an elongate club terminating in a long crook. The palpi are densely clothed with scales; the third joint is almost entirely concealed. The primaries are elongate and rather pointed; the cell is two-thirds the length of the costa; the discocellulars are almost in a line with the third median segment and very oblique, the upper one more than twice the length of the lower; the lower radial is strongly depressed at the base; the first branch arises considerably before the middle of the median nervure, the second a long way before the lower angle of the cell; the third median segment is twice the length of the lower discocellular, and nearly half that of the second segment. The secondaries are produced at the anal angle; the discocellulars are very oblique, the lower one

distinct. The body is very robust. The middle tibiæ are furnished with short spines, the hind tibiæ with two pairs of spines. The primaries of the male have a well-defined oblique band extending from the base of the second median branch to the middle of the submedian nervure.

P. agrippa has the third median segment of the primaries shorter than in either *P. corydon* or *P. lotus*, but it agrees with these two species in other respects. We figure the fore wing of a male of *P. corydon*, see Tab. CVI. fig. 14.

a. The hyaline spots on the primaries similarly placed in the two sexes.

1. **Perichares corydon.** (Tab. CVI. figg. 14, 15, ♂.)

Papilio coridon, Fabr. Syst. Ent. p. 533 ¹.

Proteides coridon, Butl. Cat. Diurn. Lep. Fabr. p. 264, t. 3. f. 6 (♀) ².

Perichares corydon, Wats. P. Z. S. 1893, p. 123 ³.

Hesperia phocion, Fabr. Ent. Syst. iii. p. 335 ⁴.

Eudamus trinidad, Luc. in Sagra's Hist. fis., polit. y nat. de Cuba, Ins. p. 268 ⁵.

♂. *Goniloba dolores*, Reak. Proc. Acad. Phil. 1868, p. 87 ⁶.

Hesperia adela, Hew. Exot. Butt. v., *Hesperia*, ff. 1-3 (♂ ♀) ⁷.

Perichares marmorata, Scudd. Rep. Peabody Ac. Sci. iv. p. 81 (1872) ⁸.

Alis fuscis ad basin viridi tinctis, stigmatе grisescente, anticis maculis tribus in linea obliqua, una ad venam submedianam interdum obsoleta, secunda inter ramos medianos primum et secundum, tertia ultra eam, macula in cellula litteram C formante, flavo-hyalinis: subtus ut supra, anticis macula submediana flava et majore, ad apicem posticisque (nisi ad marginem internum) griseo-marmoratis; corpore supra nitente viridi; ciliis albidis ad venarum fines fuscis; palpis subtus obscure griseis; tibiis rufis; abdomine subtus ochraceo.

♀ mari similis, sed macula inter ramos medianos primum et secundum subquadrata et majore, infra ramum medianum primum extendente.

Hab. MEXICO, Tepetlapa, Atoyac, Teapa (*H. H. Smith*), Paso de San Juan (*coll. Schaus*), Vera Cruz (*Edwards*), Orizaba (*Elwes*), Jalapa (*Höge*), Coatepec (*Brooks*), Valladolid (*Gaumer*); GUATEMALA, Chisoy Valley, Dueñas (*F. D. G. & O. S.*), Panima (*Champion*), San Gerónimo (*F. D. G. & O. S.*, *Champion*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten*), Rio Sucio, Caché, Irazu (*Rogers*); PANAMA, Bugaba, Volcan de Chiriqui (*Trötsch*, *Champion*), Veraguas (*Arcé*).—SOUTH AMERICA to Brazil ⁷; ANTILLES, Cuba ⁵, Jamaica ^{1 2 4}, Haiti.

A common Tropical-American species, varying a good deal in the size and shape of the flavo-hyaline spots on the primaries, these being much larger in the female than the male; the spot nearest the inner margin in the latter sex is sometimes absent. We have seen Mr. Scudder's type of *P. marmorata* from Venezuela ⁸, and it does not differ from our long series. We have a female from Chiriqui, as well as one from Brazil, in which the spots are all very large, and the submedian spot confluent with the one exterior to it. In some specimens there is no trace of the greenish tinge on the body and base of the wings. For the genitalia of the male, see Tab. CVI. fig. 15.

2. **Perichares agrippa**, sp. n. (Tab. CVI. figg. 16, 17, ♂.)

Alis fuscis, ad basin viridi tinctis, stigmatе grisescente, anticis maculis tribus albo-hyalinis, una elongata obliqua et curvata in cellula, secunda transversa inter ramos medianos primum et secundum, tertia minore ultra eam: subtus ut supra, sed paulo pallidioribus, anticis costa albida apicem versus, posticis sparsim griseo suffusis; ciliis ad angulum analem anticarum et posticis omnino ochraceis; abdomine subtus coloris ejusdem; palpis quoque pilis sordide albis; clava antennarum subtus ochracea.

♀ ignota.

Hab. NICARAGUA, Chontales (*Belt*).

One worn male of this very distinct species was given us by Belt. It is most nearly allied to *P. corydon* (Fabr.), but the underside of the secondaries is less mottled and the fringe of these wings is ochreous.

b. The hyaline spots differently placed in the two sexes, yellow in the male, white in the female.

3. **Perichares lotus**. (Tab. CVI. figg. 18, 19, 20, ♂; 21, 22, ♀.)

♀. *Telegonus lotus*, Butl. Trans. Ent. Soc. 1870, p. 495¹.

Alis fuscis, ad basin nitente viridibus, stigmatе grisescente, anticis macula magna in cellula extrinsecus excavata, altera elongata infra eam inter ramos medianos secundum et tertium, flavo-hyalinis: subtus ut supra, sed pallidioribus, anticis ad apicem et posticis (margine interno excepto) griseo-marmoratis; ciliis albidis; corpore supra viridi.

♀. Alis fuscis, ad basin nitente viridibus, fascia obliqua venis interrupta a cellulæ medio angulum analem versus extendente, et macula transversa inter ramos medianos secundum et tertium, albo-hyalinis: subtus griseo-marmoratis sicut in mari; corpore supra viridi.

Hab. MEXICO (*coll. nostr.*), Jalapa, Coatepec (*coll. Schaus*); PANAMA, Chiriqui (*coll. Staudinger*).—COLOMBIA; VENEZUELA¹; ECUADOR; TRINIDAD.

Mr Schaus has three males and a female of this species from the neighbourhood of Jalapa in Mexico, and we have two examples from the same country without precise localities; Dr. Staudinger, too, has lent us a specimen from Chiriqui. We have a female from Parana which evidently belongs to a closely allied form, but in this the oblique white band on the primaries is very narrow, and there is no spot beyond it between the median branches. The sexes, as pointed out above, are very different. The type of *Telegonus lotus*, a female, is in our collection.

The males are very like those of *P. corydon*, with which the species is confused in the Hewitson collection; there are, however, only two hyaline spots on the primaries in this sex; the females are very dissimilar. We figure a pair from Jalapa, from Mr. Schaus's collection; also the genitalia of the male, for which see Tab. CVI. fig. 20.

TALIDES.

Talides, Hübner, Verz. bek. Schmett. p. 106 (1816) (part.); Watson, P. Z. S. 1893, p. 122.

Watson takes as the type of this genus *Papilio sergestus*, Cram., and associates with it various other Tropical-American species, one at least of which (*Hesperia chiomara*,

Hew.) is without a brand in the male. We here retain the generic name *Talides* solely for the branded forms, one only of which, the type, enters our limits.

The antennæ and palpi are formed as in *Perichares*. The primaries are pointed; the cell is much less than two-thirds the length of the costa; the discocellulars are moderately oblique, the upper one more than twice the length of the lower; the lower radial is greatly depressed at the base; the first branch arises a little before the middle of the median nervure, the second near the lower angle of the cell; the third median segment is short. The secondaries are produced at the anal angle; the discocellulars are very oblique, the lower one distinct. The body is very robust. The middle tibiæ are furnished with short spines, the hind tibiæ with two pairs of spurs. The primaries of the male have a conspicuous oblique brand extending from the base of the second median branch to a little before the middle of the submedian nervure.

We figure the fore wing of a male of *T. sergestus*, see Tab. CVI. fig. 23.

1. ***Talides sergestus*.** (Tab. CVI. figg. 23, 24, ♂; 25, 26, ♂, var.)

—, Clerck, Icon. t. 42. f. 2 (nec Linn.)¹.

♂. *Papilio sergestus*, Cram. Pap. Exot. t. 74. f. C².

Talides sergestus, Wats. P. Z. S. 1893, p. 122³.

♀. *Papilio sinon*, Cram. Pap. Exot. t. 342. ff. D, E⁴.

Alis fuscis, ferrugineo tinctis, stigmatе grisescēte, anticis regione costali ferrugineo, maculis duabus aut tribus irregularibus in linea obliqua, una in cellula geminata, punctisque tribus in linea transversa subapicalibus, flavo-hyalinis; posticis macula coloris ejusdem discali: subtus rubescentioribus, maculis ut supra, ad marginem externum purpureo tinctis, margine interiore late pallidiore; posticis indistincte fusco marmoratis, macula flava discali ut supra; capite et corpore subtus læte ferrugineis; ciliis anticarum et posticarum ochraceis.

♀ mari similis, sed anticis maculis omnibus magnis, ea inter ramos medianos primum et secundum elongata et obliqua, una quoque semper in vena submediana: subtus anticis margine externo et posticis omnino grisescētioribus.

Hab. MEXICO, Coatepec (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, San Gerónimo (*F. D. G. & O. S.*), Purula and San Juan in Vera Paz (*Champion*); NICARAGUA, Chontales (*Belt*); PANAMA, Chiriqui (*Ribbe*), Bugaba (*Champion*), Veraguas (*Arcé*).—SOUTH AMERICA to Guiana^{2 4} and Brazil, Trinidad.

Linnæus quoted Clerck's figure of this species under the name *Papilio thrax*, but it evidently applies to the Tropical-American insect subsequently described by Cramer as *P. sergestus*. *P. thrax* is a well-known eastern species.

This fine insect is not uncommon in Central America, ranging as far north as the Mexican State of Vera Cruz. Both sexes vary a good deal in the colour of the under-side of the secondaries.

The female, described by Cramer under the name of *P. sinon*, has much larger spots on the primaries and an additional one near the submedian nervure. Some males have the spots on the primaries nearly as large as in the females, and the yellow submedian spot present (figg. 25, 26). For the genitalia, see Tab. CVI. fig. 24.

PYRRHOPYGOPSIS, gen. nov.

There are certain Tropical-American species of Hesperiidæ which have very much the facies of *Pyrrhopyge* and *Phocides*, from which they differ in the neuration of the primaries: the cell is shorter, the upper discocellular is more than twice the length of the lower, &c. These forms, of which *Pyrrhopyge socrates*, Mén., may be taken as the type, belong really to the Pamphilinæ, near *Thracides*, and a new name is required for them. They differ from *Thracides* and its allies in having stouter legs and the discocellulars of the secondaries less oblique; the males are without a brand on the primaries, and have a tuft of very long hairs in the abdominal fold of the secondaries. *Erycides orasus* and *E. romula*, Druce, and *E. tenebricosa*, Hew., belong here; one species only, *E. orasus*, enters our limits.

The antennæ are moderately long, and have an elongate club, terminating in a long slender crook. The palpi are densely scaled; the third joint is very short and almost concealed. The primaries are elongate, rather pointed at the tip; the cell is less than two-thirds the length of the costa; the discocellulars are very oblique, the upper one more than twice the length of the lower, the latter shorter than the third median segment; the lower radial is depressed at the base; the first branch arises long before the middle of the median nervure, the second at some little distance before the lower angle of the cell. The secondaries are prolonged at the anal angle; the discocellulars are moderately oblique, the lower one distinct. Legs stout; hind tibiæ furnished with two pairs of spurs and a fringe of long hairs, the femora also fringed with long hairs. The primaries of the male are without trace of a brand; the secondaries have a tuft of long hairs in the abdominal fold in this sex.

We figure the fore wing of a male of *P. orasus*, see Tab. CVI. fig. 29.

1. **Pyrrhopygopsis orasus.** (Tab. CVI. figg. 27–30, ♂.)

Erycides orasus, Druce, P. Z. S. 1876, p. 248, t. 18. f. 9¹.

Pyrrhopyge socrates, Staud. Exot. Schmett. p. 294, t. 99. f. 14 (♂)² (nec Ménétr.).

Alis nitente chalybeo-nigris: subtus coloris ejusdem, anticis costa et apice late et posticis dimidio externo (nisi ad angulum analem) viridi tinctis, posticis area basali late alba; capite, palpis et abdomine ad apicem rufis; ciliis albis.

♀ nobis ignota.

Hab. PANAMA (*Ribbe, in mus. Staudinger*).—SOUTH AMERICA to Peru¹.

There is a single specimen of this fine species from Panama in Dr. Staudinger's collection. The type of *E. orasus* came from Cosnipata, in Peru, and is now in our possession. The male has a strong pencil of hairs in the abdominal fold. For the genitalia, see Tab. CVI. fig. 30.

The following species of Hesperiidæ, described or recorded from Central America, have been identified during the publication of the preceding pages. The corrections in the synonymy, &c., will be dealt with more fully in the Supplement to the whole subject:—

- Achlyodes athymnios*, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 225.—Central America. = *Æthilla lavochea*, Butl. (anteà, p. 345).
- Achlyodes cyrna*, Mab. Bull. Soc. Ent. Fr. 1895, p. lvi (Feb. 27).—Chiriqui. = *Achlyodes fasciata*, G. & S. (anteà, p. 396). Mabilles's name has priority.
- Achlyodes hewitsonius*, Reak. Proc. Acad. Phil. 1866, p. 340.—Mexico, Vera Cruz. = *Doberes mexicanus* (Feld.) (anteà, p. 407). Reakirt's name has priority.
- Carcharodus mazans*, Reak. Proc. Acad. Phil. 1866, p. 335.—Mexico, Vera Cruz. = *Staphylus ascalaphus* (Staud.) (anteà, p. 432). Reakirt's name has priority.
- Cecropterus dhega*, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. lxxvii (1891).—Jalapa. = *C. neis* (Geyer) (anteà, p. 328).
- Cyclosæmia gratiosa*, Mab. Ann. Soc. Ent. Fr. 1897, p. 194.—Chiriqui. This is a varietal form of *C. anastomosis*, Mab. (anteà, p. 376), with the whitish coloration more extended on the secondaries beneath.
- Epargyreus orizaba*, Scudd. Rep. Peabody Ac. Sci. iv. p. 70 (1872).—Guatemala. = *Eudamus exadeus* (Cram.) (anteà, p. 299).
- Eudamus biolleyi*, Mab. Bull. Soc. Ent. Fr. 1900, p. 230.—Costa Rica. A good species allied to *E. crison*. It will be figured in our Supplement.
- Goniloba azul*, Reak. Proc. Acad. Phil. 1866, p. 340.—Mexico, Vera Cruz. = *Thymele fulgerator* (anteà, p. 311).
- Hesperia crisia* (H.-S.), Scudd. Rep. Peabody Ac. Sci. iv. p. 74 (1872).—Cuba, Tehuantepec, Guatemala. We have not seen a specimen of this Antillean insect from Mexico or Guatemala, and the specimens recorded from these places by Scudder probably belong to *H. syrichtus* or to one of the other common Central-American forms of this genus (anteà, pp. 449–452).
- Murgaria leucophrys*, Mab. Ann. Soc. Ent. Fr. 1897, p. 183.—Chiriqui and Bogota. The Chiriqui specimens referred by us to *M. albociliata* (anteà, p. 333) belong to it.
- Pleusioneura fritzgærtneri*, Bailey, Bull. Brooklyn Soc. iii. p. 62 (1881).—Salvador. = *Celænorrhinus variegatus*, G. & S. (anteà, p. 383). Bailey's name has priority.
- Pyrgus georgina*, Reak. Proc. Acad. Phil. 1868, p. 88.—Mexico, Vera Cruz. = *Chiomara asychis* (Cram.) (anteà, p. 453).
- Telegonus consus*, G. & S. (anteà, p. 309). = *T. megalurus*, Mab. Petites Nouv. Ent. ii. p. 162 (1877); Ann. Soc. Ent. Belg. xxi. p. 25 (1878).—Colombia. Mabilles's name has priority.

Thymele montezuma, Scudd. Rep. Peabody Ac. Sci. iv. p. 70 (1872).—Mexico, Tehuantepec. = *Eudamus alcæus*, Hew. (anteà, p. 281).

Thymele vitreus, Scudd. loc. cit. p. 68.—Venezuela. = *Eudamus asine*, Hew. (anteà, p. 283).

NOTE.—In a footnote on p. 440 a new species of *Zopyrion* from Brazil was described, but the specific name was not given: it should be *evenor*, G. & S.

The following species of Hesperiidæ, recorded or described from within our limits, remain unidentified by us. It is highly probable that many of these are synonymous with previously described forms:—

Achlyodes gorgona, Plötz, Jahrb. Nass. Ver. xxxvii. p. 15 (1884).—Guatemala.

„ *nivonicus*, Plötz, loc. cit. p. 14.—Mexico.

Æthilla toxus, Plötz, Berl. ent. Zeitschr. xxvi. p. 258 (1882).—Mexico.

Antigonus bipuncta, Plötz, Jahrb. Nass. Ver. xxxvii. p. 23 (1884).—Mexico.

„ *sericus*, Plötz, loc. cit. p. 22.—Chiriqui.

„ *tortricinus*, Plötz, loc. cit. p. 27.—Panama and Venezuela.

„ *zorilla*, Plötz, Stett. ent. Zeit. xlvii. p. 112 (1886).—Panama.

Apaustus eudesmia, Plötz, Stett. ent. Zeit. xlv. p. 163 (1884).—Mexico.

„ *euphrasia*, Plötz, loc. cit. p. 166.—Mexico.

„ *prittwitzi*, Plötz, loc. cit. p. 165.—Mexico.

Cyclopides gyrans, Plötz, loc. cit. p. 393.—Mexico.

Erycides imbreus, Plötz, Stett. ent. Zeit. xl. p. 406 (1879).—Central America.

Eudamus jalapus, Plötz, Stett. ent. Zeit. xliii. p. 100 (1882).—Jalapa.

„ *valeriana*, Plötz, loc. cit. p. 99.—Mexico.

Goniurus brevicauda, Plötz, Stett. ent. Zeit. xlvii. p. 83 (1886).—Chiriqui.

Hesperia æas, Plötz, Stett. ent. Zeit. xliii. p. 439 (1882).—Chiriqui.

„ *angellus*, Plötz, Stett. ent. Zeit. xlvii. p. 94 (1886).—Chiriqui.

„ *angulis*, Plötz, loc. cit. p. 91.—Panama.

„ *autumna*, Plötz, Stett. ent. Zeit. xlv. p. 43 (1883).—Central America.

„ *catochia*, Plötz, Stett. ent. Zeit. xliii. p. 342 (1882).—Mexico.

„ *crispinus*, Plötz, loc. cit. p. 318.—Mexico.

„ *erratica*, Plötz, Stett. ent. Zeit. xlv. p. 211 (1883).—Guatemala.

„ *eulogius*, Plötz, loc. cit. p. 64.—Mexico.

„ *favetta*, Plötz, loc. cit. p. 41.—Chiriqui.

„ *fimbriata*, Plötz, Stett. ent. Zeit. xliii. p. 322 (1882).—Mexico.

„ *ina*, Plötz, loc. cit. p. 316.—Chiriqui.

„ *librita*, Plötz, Stett. ent. Zeit. xlvii. p. 100 (1886).—Panama.

„ *lysias*, Plötz, Stett. ent. Zeit. xlv. p. 200 (1883).—Chiriqui.

- Hesperia noctis*, Plötz, loc. cit. p. 56.—Chiriqui.
- „ *paria*, Plötz, Stett. ent. Zeit. xliii. p. 315 (1882).—Chiriqui.
- „ *piso*, Plötz, Stett. ent. Zeit. xlvii. p. 98 (1886).—Panama.
- „ *reticulata*, Plötz, Stett. ent. Zeit. xlv. p. 208 (1883).—Chiriqui and Venezuela.
- „ *serina*, Plötz, loc. cit. p. 231.—Mexico.
- „ *tropica*, Plötz, loc. cit. p. 230.—Mexico.
- „ *ulphila*, Plötz, loc. cit. p. 212.—Mexico.
- „ *zalma*, Plötz, Stett. ent. Zeit. xlvii. p. 89 (1886).—Panama.
- „ *zenckii*, Plötz, Stett. ent. Zeit. xlv. p. 196 (1883).—Mexico.
- Netrocoryne coronus*, Plötz, Berl. ent. Zeitschr. xxvi. p. 77 (1882).—Chiriqui.
- Nisoniades eusebius*, Plötz, Jahrb. Nass. Ver. xxxvii. p. 38 (1884).—Central America.
- „ *oeta*, Plötz, loc. cit. p. 39.—Chiriqui and Brazil.
- Pellicia corinna*, Plötz, Berl. ent. Zeitschr. xxvi. p. 254 (1882).—Mexico.
- „ *licisca*, Plötz, loc. cit. p. 254.—Nicaragua.
- „ *albangula*, H.-S. Corresp.-Blatt Regensb. 1870, p. 160 (1870).—Guatemala.
- „ *dimidiata*, H.-S. loc. cit. p. 160.—Mexico.
- „ *ephora*, H.-S. loc. cit. p. 160.—Central and S. America.
- Pyrgus albescens*, Plötz, Mitth. nat. Ver. Vorpomm. xv. p. 4 (1884).—Mexico.
- „ *insolatrix*, Plötz, loc. cit. p. 4.—Mexico.
- „ *lycurgus*, Plötz, loc. cit. p. 18.—Central America.
- „ *varus*, Plötz, loc. cit. p. 20.—Mexico.
- Tagiades chacona*, Plötz, Stett. ent. Zeit. xlvii. p. 112 (1886).—Panama.
- „ *doria*, Plötz, Jahrb. Nass. Ver. xxxvii. p. 44 (1884).—Mexico.
- „ *monartus*, Plötz, loc. cit. p. 49.—Panama.
- „ *tæniatus*, Plötz, loc. cit. p. 41.—Oaxaca.
- „ *vincula*, Plötz, Stett. ent. Zeit. xlvii. p. 113 (1886).—Panama.
- Thymelicus isidorus*, Plötz, Stett. ent. Zeit. xlv. p. 287 (1884).—Mexico.

S U P P L E M E N T.

DANAIS (I. p. 1).

Danais plexippus (I. p. 1).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*), near Durango city (*Becker*), Sierra Madre de Tepic (*Richardson*), Jalapa (*coll. Schaus*), Orizaba (*Elwes*), Teapa (*H. H. Smith*); GUATEMALA, Telemán, San Gerónimo (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*), Ruatan I. (*Gaumer*); COSTA RICA, San Francisco (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

Danais cleothera (I. p. 3).

To the localities given, add:—MEXICO, Sierra Madre de Tepic (*Richardson*), Rio Papagaio and Dos Arroyos in Guerrero (*H. H. Smith*), Puebla (*Elwes*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Panima, Tocoý (*Champion*); NICARAGUA, Matagalpa (*Richardson*).

Danais berenice (I. p. 3).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*), Alamos, Pinos Altos, (*Buchan-Hepburn*), Mazatlan (*Forrer*), near Durango city (*Becker*), Amula, Xucumanatlan and Rincon in Guerrero (*H. H. Smith*), Acapulco (*Markham*), Tampico (*Richardson*), Jalapa (*Elwes*), Teapa (*H. H. Smith*); BRITISH HONDURAS, R. Sarstoon (*Blancaneaux*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Dueñas, San Gerónimo, Telemán (*Champion*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, San Francisco (*Rogers*); PANAMA, Bugaba (*Champion*).

4. **Danais eresimus.**

Papilio eresimus, Cr. Pap. Ex. t. 175. ff. G, H¹.

Danais eresimus, Bates, Trans. Linn. Soc. xxiii. p. 517²; Godm. & Salv. P. Z. S. 1896, p. 514³.

Alis supra lateritio-fulvis, parte basali et venis obscurioribus, marginibus externis nigricantibus punctis albis includentibus; anticis maculis subapicalibus rotundis in serie arcuata positis a costa ad medium marginis externi deinde margine ipso parallela, serie altera ultra cellulam in disco extendente, macula ultima inter ramos medianos posita: subtus pallidioribus et maculis omnibus magis distinctis, posticis fusciscentioribus, fascia maculosa indistincta discali pallidiore.

Hab. PANAMA, Colon (*Boucard*).—SOUTH AMERICA, Colombia to Guiana, Amazons Valley²; ANTILLES, Haiti, Jamaica, St. Vincent³.

Of this widely ranging species we have a single male specimen taken by M. A. Boucard near Colon.

ITUNA (I. p. 4).

Ituna lamirus (I. p. 5).

Ituna lamirus, var. *completa*, Staud. Exot. Schmett. p. 55, t. 27⁵.

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Orizaba (*Elwes*), Jalapa (*coll. Schaus*); BRITISH HONDURAS, R. Hondo (*Blancaneaux*); GUATEMALA, Chiacam, Senahu, Sabo, San Gerónimo (*Champion*); NICARAGUA, Matagalpa (*Richardson*).

Dr. Staudinger has sent us his Chiriqui type of the race *completa*. It has the whole of the base of the primaries dark, the innermost of the light bands being reduced to an elongated spot towards the anal angle between the submedian nervure and the first median branch. We have similar specimens from the Cauca Valley and intermediate forms from Colombia in which the inner band instead of being continuous is broken up into spots.

No doubt several partially segregated races of *I. lamirus* are found within the limits of its wide range, but they are not very pronounced. The Mexican, Guatemalan, and Nicaraguan form is most distinct; that of Costa Rica and Panama (*I. albescens*, Dist.) is intermediate in the direction of the true *I. lamirus* and with it Dr. Staudinger's *I. completa* occurs. In Peru a further departure takes place in the direction of *I. phenarete*.

LYCOREA (I. p. 5).

Lycorea atergatis (I. p. 6).

To the localities given, add:—MEXICO, Orizaba (*Sallé*, *Elwes*, *H. H. Smith*, *F. D. G.*), Cuesta de Misantla (*Trujillo*), Jalapa (*Elwes*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Senahu, Panima, San Gerónimo, Mirandilla, San Isidro (*Champion*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

OLYRAS (I. p. 7).

Olyras theon (I. p. 7).

To the localities given, add:—MEXICO, Orizaba (*Sallé*), Cuesta de Misantla, Jalapa (*coll. Schaus*, *Trujillo*); GUATEMALA, Senahu in Vera Paz (*Champion*).

2. *Olyras staudingeri*.

Olyras montagui, anteà, i. p. 7 (nec Butl.)¹.

Olyras staudingeri, Godm. & Salv. Trans. Ent. Soc. 1897, p. 242².

O. montagui similis, sed anticis vena mediana fulva, posticis medialiter fere omnino fulva ad angulum apicalem vix pallidioribus, fascia lata mediana semihyalina haud notata: subtus macula exteriore costali alba majore et triangulari maculis submarginalibus anticarum albis haud interruptis.

Hab. COSTA RICA, Irazu¹; PANAMA, Chiriqui¹.

The receipt of additional specimens of the true *O. montagui* from the Cauca Valley, Colombia, shows that the Central-American insect referred by us to that species is really distinct. This is Dr. Staudinger's view, and we have named the Central-American form after him.

TITHOREA (I. p. 9).

Tithorea duenna (I. p. 9).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*); GUATEMALA, Senahu, Sabo, Purula, Chiacam, Cerro Zunil (*Champion*), Solola (*Richardson*).

1 (A). *Tithorea monosticta*.

Tithorea monosticta, Godm. & Salv. Trans. Ent. Soc. 1897, p. 243¹.

T. duennæ similis, sed posticis fascia transversa integra nigra nulla, macula ad angulum apicalem tantum notatis: subtus posticis fascia maculosa et macula flavida ad angulum apicalem.

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).

A female specimen lent us by Dr. Staudinger differs in the above points from *T. duenna*, of Guatemala. From *T. pinthias*, from Panama, it may be known by the narrower dark border round the apical angle of the secondaries and the single isolated black spot on these wings.

Tithorea helicaon (I. p. 10).

To the localities given, add:—PANAMA, San Feliz (*Champion*).

We have now received two specimens from the State of Panama, agreeing with those from Costa Rica.

Tithorea hippothous (I. p. 11).

Tithorea hippothous, anteà, i. p. 11 (partim) (nec fig.).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*); GUATEMALA, Cubilguitz in Vera Paz (*Champion*).

When describing *T. hippothous*, we had before us a female from San Gerónimo

and specimens lent us by Dr. Staudinger from Salvador. The latter he described subsequently as *T. salvadoris*, one of them having been figured by us (t. 2. fig. 9). We have now a good series of examples, and it is evident that there are two species—one an eastern form ranging from Southern Mexico to Eastern Guatemala, the other a western one found throughout the region bordering the Pacific Ocean from the confines of Mexico to Salvador. We restrict the name *T. hippothous* to the eastern form. The male differs from that of *T. salvadoris* in the absence of yellow near the apical angle of the secondaries; moreover, the median band on the same wings is, as a rule, reduced to two or three isolated spots, whereas in *T. salvadoris* it usually forms, but not always, a more or less continuous streak.

4 (A). *Tithorea salvadoris*.

Tithorea hippothous, antea, i. p. 11, t. 2. f. 9 (*T. irene*) (partim) (Sept. 1879) ¹.

Tithorea furea, var. *salvadoris*, Staud. Exot. Schmett. p. 73 (1888) ².

T. hippothoi similis, sed anticis colore fulvo in cellula et infra eam posticisque apicem versus flavo suffusus.

Hab. GUATEMALA, Volcan de Santa Maria (*Richardson*), Torola, Mirandilla (*Champion*); SALVADOR (*mus. Staudinger* ²).

We possess ten specimens of this species, all from the Pacific slope of Guatemala, from elevations between 1000–5000 feet.

MELINÆA (I. p. 12).

Melinæa scylax (I. p. 12).

To the localities given, add:—PANAMA, Bugaba (*Champion*), Veraguas (*Arcé*).

Melinæa imitata (I. p. 13).

To the localities given, add:—MEXICO, Rincon, Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus*), Orizaba (*Sallé*); BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*), Belize (*Mus. Brit.*); GUATEMALA, Mirandilla, San Isidro (*Champion*).

AERIA (I. p. 15).

Aeria agna (I. p. 15).

Aeria agna, Staud. Exot. Schmett. p. 70, t. 29 ³.

To the localities given, add:—SALVADOR (*mus. Staudinger* ³); PANAMA, Volcan de Chiriqui, David, Tolé (*Champion*).—TRINIDAD; ECUADOR.

Aeria pacifica (I. p. 16).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Cubilguitz, Telemán, Panzos, Torola, Zapote, San Isidro (*Champion*), Volcan de Santa Maria (*Richardson*).

THYRIDIA (I. p. 16).

Thyridia melantho (I. p. 17).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Sent us in abundance from Bugaba.

MECHANITIS (I. p. 18).

Mechanitis lycidice (I. p. 19).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Hondo, Rio Sarstoon (*Blancaneaux*); GUATEMALA, Senahu, Panima, Cahabon, Teleman, Tucuru, San Juan, San Gerónimo, San Isidro, Mirandilla (*Champion*), Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

Mechanitis isthmia (I. p. 20).

To the locality given, add:—HONDURAS (*Dyson*), San Pedro Sula (*Wittkugel*); PANAMA, David, Bugaba, Volcan de Chiriqui (*Champion*).

Mechanitis doryssus (I. p. 21).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Panzos, Purula, Chiacam, Panima, Mirandilla (*Champion*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba (*Champion*).

3 (A). **Mechanitis saturata**.

Mechanitis doryssus, var., anteà, i. p. 21, t. 4. f. 2¹.

Mechanitis doryssus, var. *saturatus*, Staud. MS.²

Hab. HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA (*Van Patten*), Caché, Irazu (*Rogers*); PANAMA, Chiriqui (*mus. Staudinger*), Volcan de Chiriqui (*Champion*), Calobre (*Arcé*).

We have now seen many specimens of this large dark race of *M. doryssus* to which we have already called attention. This form seems sufficiently marked to require a distinctive name, but in some localities it most likely passes gradually into the more typical *M. doryssus*.

Mechanitis labotas (I. p. 21).

To the localities given, add:—COSTA RICA, Irazu (*Rogers*); PANAMA, Bugaba (*Champion*).

Mechanitis macrinus (I. p. 22).

To the localities given, add:—PANAMA, Bugaba (*Champion*), Chiriqui (*mus. Staudinger*).

Dr. Staudinger sends us a male and female of this insect from Chiriqui. The latter has a distinct black band across the secondaries, and thus differs from the ordinary female of this species. Both it and the male agree in having a small amount of yellow at the end of the cell of the primaries. We possess males thus coloured, but none of the other sex.

CERATINIA (I. p. 22).

Ceratinia decumana (I. p. 23).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Ceratinia cleis (I. p. 23).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Ceratinia dionæa (I. p. 24).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Cubilguitz, Chiacam and Senahu in Vera Paz, Mirandilla (*Champion*).

Ceratinia fenestella (I. p. 24).

To the localities given, add:—GUATEMALA, Cubilguitz and Telemán in Vera Paz (*Champion*); PANAMA, Bugaba (*Champion*).

Ceratinia leucania (I. p. 25).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Ceratinia callispila (I. p. 25).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

NAPEOGENES (I. p. 26).

Napeogenes tolosa (I. p. 27).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); GUATEMALA, Cubilguitz, Chiacam, Cahabon, Senahu, and San Juan in Vera Paz (*Champion*).

The Nicaraguan and other southern localities previously quoted under *N. tolosa* belong to the following species, *N. amara*.

2 (A). *Napeogenes amara*.

Napeogenes tolosa, anteà, i. p. 27, t. 3. f. 4 (partim) ¹.

Napeogenes amara, Godm. Ann. & Mag. Nat. Hist. (7) iii. p. 158 (1899) ².

N. tolosæ similis, sed colore nigro apicali basin versus magis extenso maculisque apicalibus flavis minoribus

Hab. NICARAGUA ^{1 2}; COSTA RICA ^{1 2}; PANAMA ^{1 2}.

Mr. Richardson has sent us additional specimens of this insect from Matagalpa, Nicaragua, and Mr. Champion also met with it at Bugaba and on the Volcan de Chiriqui.

DIRCENNA (I. p. 28).

Dircenna klugi (I. p. 28).

Dircenna klugii, Staud. Exot. Schmett. p. 57, t. 27 ⁴.

To the localities given, add:—MEXICO, Cuesta de Misantla (*M. Trujillo*), Jalapa (*coll. Schaus*), Orizaba (*Elwes, F. D. G., H. H. Smith*), Acaguizotla, Vera Cruz, Teapa (*H. H. Smith*); BRITISH HONDURAS, R. Sarstoon (*Blancaneaux*); GUATEMALA, Cahabon, Chiacam, Senahu, Teleman, El Tumbador, Las Mercedes, San Isidro (*Champion*), Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Volcan de Chiriqui (*Champion*).

Dircenna relata (I. p. 29).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Dircenna euchytma (I. p. 30).

To the localities given, add:—GUATEMALA, Panzos, Teleman, Chacoj, and Panima in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, David, Volcan de Chiriqui (*Champion*).

CALLITHOMIA (I. p. 31).

Callithomia hezia (I. p. 31).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, Volcan de Chiriqui, David, Tolé (*Champion*).

Sent us in abundance from the State of Panama.

Callithomia hedila (I. p. 32).

To the localities given, add:—GUATEMALA, Cubilguitz, Panima, Teleman (*Champion*).

4. *Callithomia megaleas*.

Callithomia megaleas, Godm. Trans. Ent. Soc. 1898, p. 111¹.

Alis anticis nigricantibus ad basin fulvis, maculis sex submarginalibus ad costam extendentibus, stria inter venam medianam et ramum suum secundum fasciaque obliqua ultra cellulam, flavis, fascia obliqua per cellulam, altera inter ramos medianos, fulvis; posticis fulvis unicoloribus, margine externo angusto nigro: subtus ut supra, anticis ad apicem et ad angulum analem punctis albis notatis, posticis quoque area subcostali nigra.

Hab. PANAMA, David (*Champion*¹).

We have a single female only of this distinct species.

CALLOLERIA (I. p. 33).

Calloleria azara (I. p. 35).

To the localities given, add:—PANAMA, Bugaba (*Champion*).—COLOMBIA, Rio San Juan.

Sent us in abundance by Mr. Champion from Chiriqui.

HYPOSCADA (I. p. 35).

Hyposcada virginiana (I. p. 35).

To the localities given, add:—MEXICO, Cuesta de Misantla (*M. Trujillo*), Cordova (*Höge*); GUATEMALA, Cubilguitz, Senahu, and Panima in Vera Paz, El Tumbador, San Isidro, Mirandilla, Torola (*Champion*), Solola (*Richardson*).

Sent in abundance by Mr. Champion from Guatemala.

Hyposcada adelphina (I. p. 36).

Ithomia adelphina, Staud. Exot. Schmett. p. 65, t. 28 (♂)¹.

To the localities given, add:—SALVADOR¹; NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—COLOMBIA.

LEUCOTHYRIS (I. p. 37).

1. *Leucothyris paula*.

Leucothyris victorina, antea, i. p. 37 (nec Guér.)¹.

Leucothyris paula, Weymer, Stett. ent. Zeit. 1884, p. 15, t. 2. f. 8².

To the localities given, add:—MEXICO, Cuesta de Misantla (*M. Trujillo*), Coatepec (*Brooks*), Cordova (*Höge*), Orizaba (*Elwes*), Jalapa (*coll. Schaus*), Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Sarstoon (*Blancaneaux*); GUATEMALA, Cahabon, Panima, Chiacam, San Juan, and Teleman in Vera Paz, Las Mercedes, San Isidro (*Champion*); COSTA RICA, Candelaria Mountains (*Underwood*); PANAMA, Bugaba (*Champion*).

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We called attention (*anteà*, i. p. 38) to the difference between this common Central-American insect and the southern *L. victorina*. The former has since been named by Herr Weymer *L. paula*, therefore the above correction in the synonymy is required.

Leucothyris zea (I. p. 38).

To the localities given, add:—GUATEMALA, Solola (*Richardson*), Sabo in Vera Paz, Cerro Zunil (*Champion*).

Leucothyris vicina (I. p. 39).

Ithomia vicina, Staud. Exot. Schmett. p. 68, t. 29 (♂) ³.

To the localities given, add:—PANAMA, Peña Blanca (*Champion*).

EPISCADA (I. p. 40).

Episcada salvinia (I. p. 41).

To the localities given, add:—MEXICO, Orizaba (*Elwes*, *F. D. G.*, *H. H. Smith*); GUATEMALA, Sabo, Purula, and Chiacam in Vera Paz, El Tumbador, Las Mercedes, Dueñas (*Champion*), Volcan de Santa Maria (*Richardson*).

PTERONYMIA (I. p. 42).

1. **Pteronymia artena**.

Ithomia artena, Hew. Ex. Butt., *Ithomia*, t. 13. f. 48 ¹.

Pteronymia tigranes, *anteà*, i. p. 42, t. 4. ff. 10, 11 ².

To the localities given, add:—MEXICO ¹, Jalapa (*Höge*), Cuesta de Misantla (*M. Trujillo*); GUATEMALA ², Purula, Chiacam (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Chiriqui (*Trötsch*).

With the additional material now before us, we find that the species we had named *P. tigranes* is really referable to *P. artena* (Hew.), and our *P. artena* belongs to *P. simplex*.

1 (A). **Pteronymia timagenes**.

Pteronymia timagenes, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 352 (1889) ¹.

P. tigrani proxima, sed alarum marginibus multo rufescentioribus, anticarum margine interno medialiter tantum nigricante, macula cretacea ultra cellulam multo minore.

♀ mari similis, sed anticis fascia rufescente latiore.

Hab. MEXICO, Amula, Xucumanatlan, and Omilteme in Guerrero 6000 to 8000 feet (*H. H. Smith*).

Of this species we possess five specimens, including both sexes.

Pteronymia cotytto (I. p. 44).

To the localities given, add:—MEXICO, San Lorenzo, Omealca (*M. Trujillo*), Jalapa (*F. D. G.*), Orizaba (*Elwes*), Teapa (*H. H. Smith*); GUATEMALA, Cahabon, Panima, Teleman, Chiacam, Senahu, and San Juan in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Pteronymia simplex (I. p. 45).

Pteronymia (sp. no. 6) *artena*, anteà, i. p. 44 (nec Hew.)².

Ithomia simplex, Staud. Exot. Schmett. p. 69, t. 29³.

To the localities given, add:—GUATEMALA¹, Chiacam in Vera Paz (*Champion*); HONDURAS³; PANAMA, Volcan de Chiriqui (*Champion*).

Pteronymia notilla (I. p. 46).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Sent in numbers from Chiriqui by Mr. Champion.

9 (A). **Pteronymia donella**.

Ithomia donella, Feld. Reise der Nov., Lep. p. 361, t. 44. ff. 7, 8¹.

P. notillæ similis, sed anticis dimidio basali infra cellulam fulvo (nec fusco), maculis quinque ultra cellulam confluentibus et fasciam angulatam formantibus; posticis margine costali fusco angustiore.

♀ mari similis, sed colore fusco magis extenso.

Hab. PANAMA, San Miguel in the Pearl Islands (*Champion*).—COLOMBIA¹; VENEZUELA.

We have two pairs of this species from the Pearl Islands, the males differing from the females in having the lower discal spot confluent with the lower submarginal one. They agree with our mainland specimens, except in having the discal spots larger and more confluent, but we hardly consider these differences of sufficient importance to warrant its separation.

Pteronymia agalla (I. p. 47).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Sent in numbers by Mr. Champion from Chiriqui.

ITHOMIA (I. p. 48).

Ithomia heraldica (I. p. 49).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Sent in numbers from Chiriqui by Mr. Champion.

Ithomia patilla (I. p. 50).

Ithomia patilla, Staud. Exot. Schmett. p. 67, t. 29 (♀)⁴.

To the localities given, add :—MEXICO⁴, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Las Mercedes, San Isidro, Panzos, Telemán, Chiacam, Cubilguitz (*Champion*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Volcan de Chiriqui (*Champion*).

In some of the specimens subsequently sent from Guatemala and Chiriqui the dark markings on both wings are more extended, the discal band on the primaries being uninterrupted towards the anal angle.

Ithomia leila (I. p. 51).

To the localities given, add :—MEXICO, Coatepec (*Brooks*); GUATEMALA, Senahu in Vera Paz (*Champion*).

Sent us in some numbers from Senahu.

HYPOLERIA (I. p. 52).

Hypoleria cassotis (I. p. 54).

To the localities given, add :—GUATEMALA, Senahu, Telemán, Panima, and Chiacam in Vera Paz (*Champion*); PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*), Peña Blanca (*Champion*).

Hypoleria polissena (I. p. 54).

To the localities given, add :—PANAMA, Volcan de Chiriqui (*Champion*).

Of this species we now possess five specimens from Chiriqui.

HYMENITIS (I. p. 56).

Hymenitis oto (I. p. 56).

Ithomia oto, Staud. Exot. Schmett. p. 68, t. 29 (♀)³.

To the localities given, add :—MEXICO, Jalapa (*F. D. G.*), Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*); GUATEMALA, Volcan de Santa Maria (*Richardson*), San Isidro, Dueñas, Cahabon, Panima (*Champion*); NICARAGUA, Matagalpa (*Richardson*).

Hymenitis nero (I. p. 57).

To the localities given, add :—MEXICO, Cuesta de Misantla (*M. Trujillo*); GUATEMALA, Las Mercedes, San Isidro, Panima (*Champion*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Hymenitis lyra (I. p. 57).

To the localities given, add:—GUATEMALA, Cahabon, Chiacam (*Champion*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Volcan de Chiriqui (*Champion*).

4 (A). **Hymenitis moschion**, sp. n.

H. morgane similis, sed anticis margine rufescente apicali et macula discocellulari coloris ejusdem, angustioribus, maculis quatuor submarginalibus, una in costam et altera inter ramos medianos secundum et tertium, cretaceis.

♀ mari similis, sed macula discocellulari paulo latiore.

Hab. MEXICO, Xucumanatlan and Omilteme in Guerrero 7000–8000 feet (*H. H. Smith*).

Mr. Smith has sent us two pairs of this species from the highlands of Western Mexico. It is a close ally of *H. morgane*, from which it differs in having the red apical margin and the discocellular streak of the primaries very much narrower in both sexes; the white spots do not form a distinct oblique band, and the genitalia of the males are dissimilar.

Hymenitis anetta (I. p. 58).

To the localities given, add:—MEXICO, Jalapa (*Höge*), Orizaba (*Elwes*); GUATEMALA, Volcan de Santa Maria, Solola (*Richardson*), El Tumbador, Cerro Zunil, Las Mercedes, Capetillo, Chiacam (*Champion*); NICARAGUA, Matagalpa (*Richardson*).

In Hewitson's collection there is a specimen of a *Hymenitis* from Nicaragua, placed under the name of *H. diaphana* (Drury), and we have three males like it from Costa Rica and Chiriqui, which differ from *H. anetta* in having the rufo-fuscos margins of the primaries very narrow and the cretaceous spots much less distinct. For the present we prefer to treat these as only an extreme form of this species.

Hymenitis sosunga (I. p. 59).

To the localities given, add:—GUATEMALA, Cubilguitz, Teleman, Senahu, and San Juan in Vera Paz (*Champion*), Panzos (*Conradt*); HONDURAS, San Pedro Sula (*Wittkugel*).

Hymenitis zygia (I. p. 60).

To the locality given, add:—PANAMA, Bugaba (*Champion*), Veraguas (*Arcé*).

Sent us in abundance by Mr. Champion from Chiriqui.

CÆROIS (I. p. 62).

Cærois gertrudtus (I. p. 62). (Tab. CVII. figg. 1, 2, ♂.)

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).—COLOMBIA (*mus. Staudinger*).

In Dr. Staudinger's collection there is a male of this species, from Colombia, which agrees with the fragment already described by us, so far as it goes. We now take this opportunity of re-describing and of figuring it. A female, too, has been sent us from Costa Rica, a description of which is now appended:—

Alis fuscis, anticis dimidio basali et posticis fere omnino purpureo suffusis; anticis ocello magno et apicem nigro albo pupillato et infra fulvo semicincto, macula infra eum quoque fulva; posticis margine externo anguste fulvescente ad basin caudæ nigro irrorato, penicillo nigro ad medium venæ medianæ: subtus pallide ferrugineis fusco sparsim irroratis, anticis strigis transversis quatuor rufo-fuscis extrorsum pallide fulvo limbatis, duabus basalibus per cellulam ductis, tertia abbreviata, ad finem ejus quarta discali a costa ad angulum analem extendente, macula parva subapicali pallida et penicillo elongato nigro ad marginem internum apud angulum analem a margine introrsum extendente; posticis lineis tribus transnotatis, duabus a costa plus minusve margini interno parallelis, tertia transversa fere recta ab angulo apicali ad angulum analem ducta.

Anticis acutis haud hamatis, margine externo vix concavo; posticis caudatis, angulo anali sensim lobato.

♀ mari similis, sed major, anticis ocellis duobus, uno apicali, altero apud angulum analem.

So far as we can see, this insect is a true *Cærois*, agreeing in structure with *C. chorinæus* in every respect, except that the primaries are more pointed and not nearly so falcate.

We continue the use of Fabricius's name for this distinct species, but there are several discrepancies in the description that make it very doubtful if we are right in so doing. Fabricius makes no allusion to the purple tint of the wings, nor to the tufts of black hairs on both the upper and under surfaces. His type could not have been a female of the present insect (in which the tufts of hair are of course absent), as in this sex there are two ocelli on the primaries.

CALLITÆRA (I. p. 63).

Callitæra menander (I. p. 63).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, Volcan de Chiriqui, San Miguel in the Pearl Islands (*Champion*).

Callitæra polita (I. p. 64).

Cithærias polita, Staud. Exot. Schmett. p. 219, t. 77².

To the localities given, add:—COSTA RICA¹.—COLOMBIA².

PIERELLA (I. p. 66).

Pierella luna (I. p. 66).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, David (*Champion*).

Pierella rubecula (I. p. 67).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Panima and Cahabon in Vera Paz (*Champion*).

Pierella incanescens (I. p. 68).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).

Found in numbers by Mr. Champion at Bugaba.

ANTIRRHÆA (I. p. 69).

Antirrhæa tomasia (I. p. 70).

To the localities given, add:—PANAMA, Veraguas (*Arcé*).

Mr. Champion has sent us very many specimens of this species from Bugaba, whence we have already recorded it.

TISIPHONE (I. p. 71).

Tisiphone maculata (I. p. 72).

Tisiphone maculata, Staud. Exot. Schmett. p. 224, t. 80³.

To the localities given, add:—MEXICO, Cuesta de Misantla (*M. Trujillo*), Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria, Solola (*Richardson*), Cerro Zunil, San Gerónimo (*Champion*); COSTA RICA, Irazu (*Rogers*).

Tisiphone hercyna (I. p. 72).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*).

EUPTYCHIA (I. p. 73).

Euptychia ocirrhoe (I. p. 75).

Euptychia hesione, Staud. Exot. Schmett. p. 224, t. 80⁷.

To the locality given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*), Orizaba (*H. J. Elwes*), Jalapa, Vera Cruz (*F. D. G.*); GUATEMALA, Cahabon and San Juan in Vera Paz, Coatepeque, San Isidro (*Champion*), Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, Volcan de Chiriqui, David (*Champion*).

Dr. Staudinger⁷ figures a specimen of this common Tropical-American insect under the name of *E. hesione* (Sulz.), this name having one year's priority over that of *E. ocirrhoe* (Fabr.).

Euptychia metaleuca (I. p. 75).

To the localities given, add:—MEXICO, Atoyac, Teapa, Frontera (*H. H. Smith*), Jalapa (*coll. Schaus*), Valladolid in Yucatan (*Gaumer*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba (*Champion*).

Euptychia mollina (I. p. 76).

Euptychia mollis, Staud. Exot. Schmett. p. 224, t. 80⁶.

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Jalapa (*coll. Schaus*), Orizaba (*H. J. Elwes*), Atoyac, Teapa (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, David (*Champion*), Panama city (*J. J. Walker*).

Dr. Staudinger⁶ figures a specimen of his *E. mollis* from Chiriqui.

Euptychia fetna (I. p. 77).

To the localities given, add:—MEXICO, Amula and Chilpancingo in Guerrero (*H. H. Smith*).

The specimen previously recorded from Cubilguitz probably belongs to a different species, it having the outer reddish line on the primaries straighter and broader than in typical *E. fetna*; but till more material is obtained it is not advisable to name it.

Euptychia insolata (I. p. 77).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Mr. Champion has sent us numerous specimens of this species from Bugaba.

Euptychia labe (I. p. 79).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Cuesta de Misantla (*M. Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Cahabon, Sinanja, Telemán (*Champion*); COSTA RICA, Caché (*Rogers*); PANAMA, Volcan de Chiriqui (*Champion*).

Two species were confused by us under the above name—one, the true *E. labe*, with a bright ferruginous patch at the anal angle of the secondaries beneath (a character we omitted to note in our description); the other, subsequently described by Dr. Staudinger as *E. confusa*, in which this patch is absent. These insects have a similar distribution, *E. confusa*, however, being much the commoner of the two; *E. labe*, too, is usually greyer above and paler beneath, with the reddish lines somewhat narrower. *E. confusa* resembles *E. myncea* (Cram.) in the coloration of the underside of the secondaries.

8 (A). **Euptychia confusa**.

Euptychia confusa, Staud. Exot. Schmett. p. 225 (1888)¹.

Euptychia myncea, Staud. loc. cit. t. 80 (nec Cram.) ².

Euptychia labe, anteà, i. p. 79 (part.) ³.

E. labe similis, sed alis brunnescentioribus: subtus lineis rufescentibus paulo latioribus, posticis macula rufescente ad angulum analem absente.

Hab. MEXICO, Cordova (*Rümel*), Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Polochic Valley, Choctum (*F. D. G. & O. S.*), Sinanja and Panima in Vera Paz (*Champion*); NICARAGUA, Chontales (*Janson*); COSTA RICA, Caché (*Rogers*); PANAMA, Chiriqui ¹ (*Ribbe*), Bugaba, Volcan de Chiriqui, David (*Champion*), Veraguas (*Arcé*), Lion Hill (*M^cLeannan*).—SOUTH AMERICA to Ecuador.

8 (B). *Euptychia themis*.

Euptychia themis, Butl. P. Z. S. 1867, p. 104, t. 12. f. 13 ¹.

Euptychia cleophes, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 352 (♂ nec ♀) (1889) ².

Alis fuscis, lineis duabus submarginalibus, interiore crenulata; posticis ocello ad angulum analem nigro, ochraceo circumcincto et plumbeo bipupillato: subtus fusco-grisescens, lineis duabus transversis notatis, una per cellulas, altera ad finem earum, fulvis; triente distali pallidior; lineis submarginalibus sicut in pagina superiore, sed magis distinctis; anticis ocello subapicali nigro, fulvo-circumcincto et plumbeo bipupillato, alio supra eum et duobus infra obsoletis; posticis ocellis duobus distinctis, uno subapicali, secundo inter ramos medianos, duobus parvis inter eos et alio apicali.

♀ mari similis.

Hab. MEXICO ², Dos Arroyos, Rio Papagaio, and La Venta in Guerrero (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, David (*Champion*).—COLOMBIA; VENEZUELA; TRINIDAD.

Of this species, the male of which we at one time confused with *E. cleophes*, we possess a long series of both sexes. There is very little variation in the individuals in our collection, except that one of the Venezuelan females has a distinct ocellus on the upperside of the primaries at the apex. No locality was given for *E. themis* by Dr. Butler ¹, and there seems to be more than one species placed under this name in the Hewitson collection. In the series before us there are specimens from Mexico and Guatemala agreeing with the present insect.

8 (C). *Euptychia cleophes*. (Tab. CVII. figg. 3, 4, ♀.)

Euptychia cleophes, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 352 (♀ nec ♂) (1889) ¹.

♀. *E. themi* similis, sed anticis ocello subapicali distincto ornatis et plaga ad medium marginis externi fulva: subtus anticis plaga fulva sicut in pagina superiore, lineis transversis latioribus et rufescentioribus, posticis ocellis duobus distinctis, uno subapicali, secundo inter ramos medianos, duobus obsoletis inter eos et alio apicali.

Hab. MEXICO, Acaguizotla, Tierra Colorada, and Dos Caminos in Guerrero (*H. H. Smith* ¹).

E. cleophes is allied to *E. myncea* and *E. labe*, but may be distinguished by the absence of ferruginous markings beneath at the anal angle of the secondaries. As in

E. labe, there is no fulvous line across the base of the underside of the secondaries. The present species has a fulvous patch near the middle of the outer margin of the primaries, at least in the female. Since we wrote our description of *E. cleophes* we have received many more specimens from within our limits, and find that the insect we supposed to be the male of it really belongs to a different species, *E. themis*. The female of the latter differs from the same sex of *E. cleophes* in having the primaries less rounded at the apex and without the fulvous patch. The ocellus, too, is much less distinct. The male of *E. cleophes* is still unknown to us; the females, four only of which have as yet been received, all from the vicinity of Acapulco, have the apex of the primaries rounded.

Euptychia terrestris (I. p. 79).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*); PANAMA, David (*Champion*).

Euptychia pieria (I. p. 79).

Neonympha pompilia, Feld. Reise der Nov., Lep. p. 479 (1867)¹.

To the localities given, add:—MEXICO (*Sallé*¹), Jalapa (*coll. Schaus*), Atoyac, Teapa, Frontera (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, Cahabon, Chiacam (*Champion*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba (*Champion*).—COLOMBIA¹.

N. pompilia, Feld., was placed by us amongst the unidentified species at the end of the genus *Euptychia* (*anteà*, i. p. 94), but we have now, through the kindness of Mr. W. Rothschild, been able to examine the Colombian types, and find that they agree with *E. pieria*, Butler, which name has priority.

Euptychia squamistriga (I. p. 80).

To the localities given, add:—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Ventanas in Durango (*Forrer*), Savana Grande, Tierra Colorada, Amula, Xucumanatlan, Dos Caminos, and Rio Papagaio in Guerrero (*H. H. Smith*), Lake Chapala (*Richardson*).

Apparently not uncommon in Western and Central Mexico, whence we now possess many specimens.

Euptychia similis (I. p. 81).

To the localities given, add:—MEXICO, Presidio (*Forrer*), Sierra Madre de Tepic, Tehuantepec (*Richardson*), Rincon, La Venta, Rio Papagaio, Tierra Colorada, and Acaguizotla in Guerrero (*H. H. Smith*), Coatepec (*F. D. G.*), Jalapa (*coll. Schaus*), Temax in Yucatan (*Gaumer*).

Euptychia renata (I. p. 82).

Euptychia renata, Staud. Exot. Schmett. p. 226, t. 81⁴.

To the localities given, add:—MEXICO, Omealca (*M. Trujillo*), Jalapa (*coll. Schaus*), Cordova (*Rümeli*), Atoyac (*H. H. Smith*); GUATEMALA, Cahabon, San Gerónimo (*Champion*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Volcan de Chiriqui⁴ (*Champion*).

Euptychia rubricata (I. p. 82).

To the localities given, add:—MEXICO, Northern Sonora (*Morrison*), Sierra Madre de Tepic (*Richardson*).

We have two specimens—a male from Amoquileca in Guerrero (alt. 6000 feet) and a female from Ventanas in Durango (alt. 2000 feet)—which differ from our series of this species in having the fulvous markings on both wings much reduced in extent, and the reddish line beyond the cell is less oblique, it being more distant from the inner submarginal line at the anal angle than in *E. rubricata*. These may belong to a different species, but we hesitate to separate them till more material is obtained.

15 (A). **Euptychia pellonia**, sp. n. (Tab. CVII. figg. 5, 6, ♂.)

Alis brunneis, anticis area discali late rubida, ocello ad apicem albo bipupillato, lineis duabus transversis, una submarginali, altera minus distincta, interiore flexuosa, fuscis; posticis lineis duabus valde undulatis coloris ejusdem transeuntibus: subtus anticis fere ut supra, posticis griseo irroratis.

♀ mari similis.

Hab. MEXICO, Milpas and Ciudad in Durango (*Forrer*), Bolaños in Jalisco, Chapala (*Richardson*).

We have a long series of this species from the above localities, all from a high elevation. It is a close ally of *E. rubricata*, but differs in having the hind wings much more uniformly coloured, both above and beneath, without ocelli, and the transverse lines are strongly waved.

Euptychia libye (I. p. 83).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac, Teapa, Frontera (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), El Reposo, San Isidro (*Champion*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, David (*Champion*).

Euptychia satyrina (I. p. 84).

To the localities given, add:—MEXICO, Orizaba, Cuesta de Misantla (*M. Trujillo*); GUATEMALA, Las Mercedes, San Lucas Toliman, Chiacam, Senahu (*Champion*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Rio Sucio (*Rogers*); PANAMA, Volcan de Chiriqui, Bugaba, Peña Blanca (*Champion*), Veraguas (*Arcé*).

Euptychia antinoe (I. p. 86).*Euptychia antinoe*, Staud. Exot. Schmett. p. 225, t. 80³.

To the localities given, add :—MEXICO, Teapa (*H. H. Smith*); HONDURAS³, San Pedro Sula (*Wittkugel*); PANAMA, Bugaba, Tolé (*Champion*).

Euptychia camerta (I. p. 86).*Euptychia camerta*, Staud. Exot. Schmett. p. 226, t. 81 (*E. hermes*)¹².

Of this common species we have received specimens from a large number of additional localities; but as these latter add nothing to the general distribution of the insect, it is unnecessary to enumerate them here.

Euptychia ebusa (I. p. 88).

To the localities given, add :—PANAMA, Bugaba, Volcan de Chiriqui, David (*Champion*).

Sent in numbers by Mr. Champion from Chiriqui.

Euptychia philodice (I. p. 90).

To the localities given, add :—PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

Euptychia nelsoni (I. p. 91). (Tab. CVII. figg. 7, 8, ♂.)

We now give a figure of this very distinct species.

Euptychia argentella (I. p. 91).*Euptychia argentella*, Staud. Exot. Schmett. p. 227, t. 81³.

To the localities given, add :—MEXICO, Omilteme, Xucumanatlan, and Xautipa, in Guerrero, Orizaba (*Elwes*); GUATEMALA³, Volcan de Atitlan, San Lucas Toliman (*Champion*).

We have six specimens of a variety of this species which are much redder than the typical form; these are from San Lucas and Cerro Zunil in Guatemala, whence we also have normally-coloured individuals.

31 (A). **Euptychia clinas**. (Tab. CVII. figg. 9, 10, ♂.)*Euptychia clinas*, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 352 (1889)¹.

Alis anticis ad apicem obtusis, margine externo concavo; posticis margine externo dentato, angulo anali bene producto, fuscis; anticis ad costam et ad marginem externum saturatioribus, posticis ad angulum apicalem quoque obscurioribus maculis tribus submarginalibus nigricantibus notatis: subtus pallidioribus et paullo rufescentioribus, lineis tribus undulatis communibus transfasciatis, una per cellulas, secunda discali, tertia submarginali; posticis maculis duabus ad angulum analem rotundis, altera sagittiformi inter ramos medianos, argenteis, ocellis duobus ad medium marginis externi nigris fulvo circumcinctis, maculis argenteis bipupillatis.

♀ nobis ignota.

Hab. MEXICO, Omilteme and Xucumanatlan in Guerrero, Sierra Madre del Sur 7000 to 8000 feet (*H. H. Smith*¹).

This very distinct species, of which we possess four males, belongs to the section of the genus containing *E. argentella* and its allies; it may be readily distinguished by the dentate margin of the secondaries and the prolongation of the anal angle, the blunt apex of the primaries is also a marked feature.

Euptychia gemma (I. p. 92).

Neonympha gemma, W. H. Edw. Butt. N. Am. iii., *Neonympha*, t. 1. ff. 1-4 (♂ ♀)¹.

Euptychia gemma, anteà, i. p. 92 (partim)².

Alis pallide fuscis, posticis margine externo maculis duabus indistinctis obscurioribus: subtus leviter griseo irroratis, anticis lineis tribus transeuntibus ferrugineis; posticis lineis duabus valde undulatis coloris ejusdem, maculis in serie marginali argenteis, in seriei medio maculis duabus geminatis nigris, his introrsum albo et cinnamomeo late irroratis, angulum analem versus fusco-rubro notatis.

♀ mari similis.

Hab. NORTH AMERICA, Southern States¹.—MEXICO (*Mus. Berol.*²); GUATEMALA, Polochic Valley (*F. D. G. & O. S.*²), Chiacam (*Champion*).

Two species were confused by us under the above name: one, the true *E. gemma* (Hübner), the male of which has the primaries uniformly coloured above; the other, from which our description and figure were taken, has, in the male a dark patch on the disc of these wings, which are, moreover, distinctly produced at the apex in this sex. The last-mentioned insect is here separated under the name *E. pephredo*. Of the true *E. gemma*, Mr. Champion subsequently sent us two males from Chiacam, Vera Paz; the other Guatemalan localities previously quoted², with the exception of the Polochic Valley, must be transferred to *E. pephredo*. A comparison of Edwards's figures¹ with the one given by us² will readily show the difference between the two species.

33 (A). **Euptychia pephredo**, sp. n.

Euptychia gemma, anteà, i. p. 92, t. 8. f. 12 (♂)¹.

Hab. MEXICO, Chilpancingo in Guerrero (*H. H. Smith*), Cordova (*Rümelin*); GUATEMALA, central valleys, Dueñas (*F. D. G. & O. S.*), San Gerónimo (*F. D. G. & O. S.*, *Champion*¹).

We have now seen ten specimens of this insect, which may be readily separated from *E. gemma* by the characters noted above under that species. It is one of a group the males of which have a patch of darker scales on the disc of the primaries above, no trace of this being visible in *E. gemma*.

33 (B). **Euptychia hilaria**, sp. n.

Alis pallide fuscis, anticis area fasciæformi infra venam medianam obscuriore, posticis maculis duabus ad marginem externum nigrescentibus, interdum fere obsoletis: subtus pallidioribus, fusco irroratis, anticis lineolis tribus undulatis, posticis duabus transeuntibus ferrugineis, his maculis in serie marginali argenteis, in seriei medio maculis duabus geminatis nigris, linea transversa distali extrorsum ochraceo tincta.

♀ mari similis, sed in pagina superiore interdum anticis lineis duabus, pasticis una, ferrugineis.

Hab. MEXICO, Cuesta de Misantla (*M. Trujillo*), Orizaba, Atoyac (*Elwes*), Misantla (*F. D. G.*); PANAMA, Chiriqui (*Ribbe*), Volcan de Chiriqui (*Champion*).

This insect is again very closely allied to *E. pephredo*, from which it differs in its rather larger size and the more mottled underside of both wings, so that the reddish transverse lines are less conspicuous and straighter, and the bright ochreous markings so conspicuous in fresh specimens in *E. pephredo* are barely indicated.

33 (c). **Euptychia henshawi**.

Euptychia henshawi, W. H. Edw. Trans. Am. Ent. Soc. v. p. 205¹.

Neonympha henshawi, W. H. Edw. op. cit. ix. p. 7²; Butt. N. Am. iii., *Neonympha*, t. 1. ff. 5-9 (♂ ♀)³.

Hab. NORTH AMERICA, South-eastern States¹⁻³.—MEXICO, N. Sonora (*Morrison*), Bolaños in Jalisco (*Richardson*), Pinal, Puebla 8000 feet (*Elwes*, *F. D. G.*).

Mr. Elwes and myself found this insect very abundant in a pine-wood near Puebla in 1888; these specimens agree well with others in our collection from Fort Grant and Colorado.

The male of *E. henshawi*, like that of *E. pyracmon*, *E. pephredo*, and *E. hilaria*, has a patch of darker scales under the median nervure of the primaries, and these four species would perhaps be better placed under the genus *Paramecera*, Butl.

Euptychia pyracmon (I. p. 93). (*E. hilaria*, Tab. CVII. figg. 11, 12, ♂.)

To the localities given, add:—MEXICO, Xucumanatlan in Guerrero (*H. H. Smith*), Jalapa (*coll. Schaus*).

Sent in numbers from Western Mexico by Mr. Smith.

In our description (*l. c.*) we omitted to note the patch of darker scales on the disc of the primaries in the male, this being very conspicuous when the insect is held up to the light. We now figure a specimen of this sex from Xucumanatlan.

Euptychia hedemanni (I. p. 93).

Euptychia hedemanni, Staud. Exot. Schmett. p. 227, t. 81 (*E. vetones*)⁵.

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac (*H. H. Smith*); PANAMA, Volcan de Chiriqui⁵ (*Champion*).

NOTE.—Of the three unidentified species of *Neonympha* placed by us at the end of the genus *Euptychia* (anteà, i. p. 94), two have now been identified :—*N. epinephile*, Feld. = *Paramecera xicaque*, Reak. (anteà, i. p. 101); *N. pompilia*, Feld. = *Euptychia pieria*, Butl. (anteà, i. p. 79).

TAYGETIS (I. p. 94).

Taygetis armillata (I. p. 96).

To the localities given, add :—PANAMA, Veraguas (*Arcé*).

Taygetis virgilia (I. p. 97).

Taygetis virgilia, var. *rufomarginata*, Staud. Exot. Schmett. p. 235, t. 85 (1888) ⁴.

To the localities given, add :—MEXICO, Jalapa (*coll. Schaus*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Cerro Zunil (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*), Veraguas (*Arcé*).

Of this species we have now seen many more specimens from within our limits. The var. *rufomarginata* is the commoner form from Guatemala to Panama.

Taygetis nympha (I. p. 97).

To the localities given, add :—GUATEMALA, San Isidro (*Champion*).

Two specimens of this species have been sent us by Mr. Champion from the Pacific slope of Guatemala.

Taygetis andromeda (I. p. 98).

Taygetis salvini, Staud. Exot. Schmett. p. 236, t. 85 (1888) ¹⁰.

To the localities given, add :—MEXICO, Jalapa (*coll. Schaus*), Cuesta de Misantla (*M. Trujillo*), Atoyac, Teapa (*H. H. Smith*); BRITISH HONDURAS, Rio Hondo (*Blancaneaux*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).

With our very extensive series of this extremely variable species we are quite unable to separate *T. salvini* as distinct. Dr. Staudinger's type of the latter was from Chiriqui ¹⁰.

Taygetis keneza (I. p. 99).

To the localities given, add :—MEXICO, Rio Papagaio and Dos Arroyos in Guerrero (*H. H. Smith*); PANAMA, Bugaba (*Champion*).

Sent in abundance by Mr. Champion from Bugaba.

Taygetis valentina (I. p. 99).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Taygetis kerea (I. p. 100).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

We have now seen eleven specimens of this species, and we have others from Colombia which possibly belong to it. In most of them there is a buff spot on each wing beneath.

Taygetis penelea (I. p. 100).

Taygetis penelea, Staud. Exot. Schmett. p. 236, t. 85³.

To the localities given, add:—PANAMA³, Bugaba (*Champion*).

Sent in numbers by Mr. Champion from Bugaba. All the Central-American specimens we have seen have a broad longitudinal ochreous streak on the secondaries beneath.

PARAMECERA (I. p. 100).

Paramecera xicaque (I. p. 101).

Neonympha epinephele, Feld. Reise der Nov., Lep. p. 476 (1867)³.

To the localities given, add:—MEXICO (*Sallé*³), Jalapa (*coll. Schaus*), Volcan de Ixtaccihuatl, Amecameca, Puebla (*H. J. Elwes*, *F. D. G.*, *Richardson*), Misantla (*F. D. G.*), Bolaños (*Richardson*), Maltrata (*Höge*), Omilteme and Xucumanatlan in Guerrero (*H. H. Smith*).

This proves to be a common Mexican species, inhabiting a high elevation; it was met with abundantly at Puebla. *N. epinephele*, Feld., the type of which has been lent us by Mr. W. Rothschild, does not differ from *P. xicaque* (Reak.); it was not identified by us in the early part of this work.

LYMANOPODA (I. p. 101).

2. Lymanopoda cinna. (Tab. CVII. figg. 13, 14, ♂.)

Lymanopoda cinna, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 353 (1889)¹.

Alis nigricanti-brunneis; anticis maculis tribus subapicalibus, una ad angulum analem et duabus discalibus inter ramos medianos; posticis ad basin læte cæruleo lavatis: subtus rufo-castaneis, anticis ad marginem externum pallidioribus, maculis albis sicut in pagina superiore sed majoribus et omnibus (præter eam costæ proximam) nigro circumcinctis, macula pallida nigro circumcincta ad cellulæ finem; posticarum dimidio distali fasciis indistinctis ochraceis transversis et ocellis obsoletis discalibus notatis.

♀ ignota.

Hab. GUATEMALA, San Lucas Toliman 5000 feet (*Champion*¹).

Mr. Champion took a single male specimen of this beautiful insect near the Lake

of Atitlan. Its nearest ally, so far as we know, is *L. euopis*, of Costa Rica, but it may at once be distinguished by the blue base of the secondaries in the male. The only other species with which we are acquainted that have blue on the wings are the Colombian *L. samius* and *L. cæruleata*, but these are not otherwise allied.

PEDALIODES (I. p. 102).

Pedaliodes manis (I. p. 103).

To the localities given, add:—PANAMA, Volcan de Chiriqui, David (*Champion*).

Of this species we have received six additional specimens from Chiriqui.

Pedaliodes pisonia (I. p. 103).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), San Bartolo in Vera Cruz 5000 feet (*F. D. G.*); GUATEMALA, Volcan de Atitlan (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Pedaliodes perperna (I. p. 104).

? *Pronophila mycalesoides*, Feld. Reise der Novara, Lep. p. 473 (1867) ³.

Pedaliodes mycalesoides, Grose-Smith, Rhop. Exot. ii. part 33, Satyridæ, *Pedaliodes*, iii. p. 10, tab. f. 3 (♀) (July 1895) ⁴.

To the localities given, add:—PANAMA, Volcan de Chiriqui, Boquete (*Champion*).—COLOMBIA ^{3 4}.

We have now received a long series of this species from Chiriqui. The females differ from the males in having a broad fulvous band of variable extent, including the ocellus, towards the outer margin. The males are of an almost uniform reddish-brown colour above, with a more or less distinct ocellus near the anal angle of the primaries. In all our specimens, both from Central and South America, there is a distinct white subapical spot on the primaries beneath, as noticed by Hewitson. Mr. Grose-Smith ⁴ has figured a specimen of it from Costa Rica under the name of *P. mycalesoides*, Feld., the type of which we have not seen.

Pedaliodes hulda (I. p. 104).

To the localities given, add:—PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

Amongst the specimens received from Chiriqui there is one with the red on the secondaries beneath almost absent.

5 (A). **Pedaliodes subrufescens**.

Pedaliodes subrufescens, Grose-Smith, Rhop. Exot. ii. part 33, Satyridæ, *Pedaliodes*, iii. p. 12, tab. f. 5 (♂) (July 1895) ¹.

Alis brunneis vix ferrugineo tinctis: subtus quoque brunneis, posticis extrorsum late ferrugineis, lineis tribus

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indistinctis alis transeuntibus, una per cellulas, secunda ultra eas, in posticis latiore, recta et rubescentiore, tertia submarginali, in anticis extrorsum ferrugineo limbata, posticis punctis quatuor submarginalibus nigris albo pupillatis.

Hab. COSTA RICA (*Underwood* ¹).

We are unacquainted with this insect, and have taken our description from Mr. Grose-Smith's work. It appears to be most nearly allied to *P. hulda*, Butl.

Pedaliodes triaria (I. p. 105).

To the localities given, add:—PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

GYROCHEILUS (I. p. 106).

Gyrocheilus patrobas (I. p. 106).

Gyrocheilus patrobas, Staud. Exot. Schmett. p. 234, t. 84 (♀) ⁴.

Geirocheilus tritonia, W. H. Edwards, Trans. Am. Ent. Soc. v. p. 18 (1874) ⁵; Butt. N. Am.,

Geirocheilus, i. ff. 1–4 (♂ ♀) ⁶.

To the localities given, add:—NORTH AMERICA, Arizona ^{5 6}. — MEXICO ⁴, Northern Sonora (*Morrison*), Durango city (*Becker*), Jalapa (*coll. Schaus*).

Morrison and Becker have sent us numerous examples from Northern Mexico agreeing with Mr. Edwards's figures of *G. tritonia*, and these insects are inseparable from *G. patrobas* (Hew.).

OXEOSCHISTUS (I. p. 106).

Oxeoschistus hilarus (I. p. 107).

To the localities given, add:—MEXICO, Xautipa and Omilteme in Guerrero (*H. H. Smith*).

Oxeoschistus euryphile (I. p. 107).

To the localities given, add:—PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

Oxeoschistus taupopolis (I. p. 108).

To the localities given, add:—MEXICO, Cuesta de Misantla (*M. Trujillo*), Jalapa (*coll. Schaus*), Orizaba (*Elwes*); GUATEMALA, Chiacam and Sabo in Vera Paz, Volcan de Atitlan (*Champion*).

Oxeoschistus puerta (I. p. 109).

Oxeoschistus simplex, Staud. Exot. Schmett. p. 234, t. 84 (♂) ⁴.

Dr. Staudinger has figured a specimen of this species from Colombia under the name of *O. simplex*.

DRUCINA (I. p. 112).

Drucina leonata (I. p. 112).

Drucina leonata, Staud. Exot. Schmett. p. 235, t. 84⁴.

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Trötsch*⁴, *in mus. Staud.*).

Drucina championi (I. p. 113). (Tab. CVII. figg. 15, 16, ♂.)

We now take the opportunity of figuring this fine species.

MORPHO (I. p. 113).

Morpho theseus (I. p. 114).

To the localities given, add:—PANAMA, Volcan de Chiriqui 4000 feet (*Champion*).

Morpho polyphemus (I. p. 115).

To the localities given, add:—MEXICO, Presidio de Mazatlan (*Forrer*), Manzanillo (*Lloyd*), Sierra Madre de Tepic (*Richardson*), Acaguizotla, La Venta, Rio Papagaio, Dos Arroyos (*H. H. Smith*); PANAMA, Veraguas (*Boucard*).

Morpho cypris (I. p. 117).

To the localities given, add:—PANAMA, Chiriqui (*Trötsch*).

Dr. Staudinger has sent us a pair of this species from Chiriqui, where Mr. Champion also observed it. *M. cypris* appears to be a very rare insect north of the Isthmus of Panama.

Morpho amathonte (I. p. 117).

To the localities given, add:—PANAMA, Bugaba (*Champion*), Veraguas (*Arcé*).

Sent in some numbers by Mr. Champion from Bugaba.

Morpho peleides (I. p. 119).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Orizaba (*Elwes*), San Lorenzo, Omealca (*Trujillo*), Coatepec (*Brooks*), Atoyac (*H. H. Smith*); BRITISH HONDURAS, Corosal (*Roe*), Rio Hondo (*Blancaneaux*); PANAMA, David (*Champion*).

Morpho octavia (I. p. 121).

To the localities given, add:—GUATEMALA, El Tumbador (*Champion*), Volcan de Santa Maria (*Richardson*).

Morpho marinita (I. p. 121).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

DYNASTOR (I. p. 122).

Dynastor darius (I. p. 123).

Dynastor darius, Staud. Exot. Schmett. p. 214, t. 72 (♀) (1888)³.

To the localities given, add:—PANAMA, Bugaba, David (*Champion*).

OPSIPHANES (I. p. 125).

Opsiphanes boisduvali (I. p. 126).

Opsiphanes boisduvali, Staud. Exot. Schmett. p. 214, t. 72 (♂) (1888)³.

To the localities given, add:—GUATEMALA, Panima in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*).

Opsiphanes cassiæ (I. p. 127).

Opsiphanes cassiæ, Staud. Exot. Schmett. p. 214, t. 71 (♂) (1888)⁵.

To the localities given, add:—GUATEMALA, Teleman (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Opsiphanes tamarindi (I. p. 128).

Opsiphanes tamarindi, Staud. Exot. Schmett. p. 213, t. 72 (♀) (1888)⁵.

To the localities given, add:—MEXICO, Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Teleman and Panima in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); PANAMA, Bugaba (*Champion*).

5 (A). **Opsiphanes crameri**.

Papilio cassiæ, Cram. Pap. Exot. t. 105. ff. A, B¹ (nec Linn.).

Opsiphanes crameri, Feld. Wien. ent. Mon. vi. p. 123².

Alis fuscis, anticis apicem versus obscurioribus, fascia lata (ultra cellulam arcuata) a costa ad angulum analem, illic angustiore, fulva, maculis duabus apicalibus albis: subtus fuscis, anticis lineis variis valde irregularibus regionem basalem transeuntibus, fascia fulva ut supra, ad apicem nigro ocellatis, maculis duabus albis ut supra; posticis ocellis duobus, uno magno in costam albo lunulato, altero minore angulum analem versus; anticis ultra cellulam et posticis fere omnino albo irroratis.

♀ mari similis, sed major, fascia anticarum pallidiore et rectiore; posticis apicibus fulvo marginatis.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 4000 feet (*Champion*).—SOUTH AMERICA to Brazil².

We have now a pair of this species from Chiriqui, previously known only from South America. There is considerable variation in the form and width of the fulvous band on the primaries of the male, this being broad and strongly curved in the Chiriqui specimen of this sex.

Opsiphanes quirinus (I. p. 128).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Opsiphanes orgetorix (I. p. 129).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Sent us in some numbers from the low forest-country of the Pacific slope of Chiriqui.

The following species does not fall into any of the sections proposed by us in this work, and must stand by itself:—

- e.* Body slender; secondaries rounded, the cell covered with long hairs, which are not collected into a distinct tuft, the region of the submedian nervure hairy over the basal half.

10. Opsiphanes staudingeri. (Tab. CVII. figg. 17, 18, ♂.)

Opsiphanes staudingeri, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 95 (1894)¹.

Alis rufo-fuscis, anticis apice obscuriore, fascia curvata, fusco limbata, a costa ad angulum analem extendente, fulva, maculis duabus apicalibus albis; posticis margine externo fulvo introrsum sinuato et fusco limbato: subtus obscure brunneis, fulvo irroratis, fasciis duabus pallide flavis lineis nigris limbatis cellulam transeuntibus, lineis aliis valde irregularibus ad cellulæ finem nigrescentibus, linea submarginali arcuata introrsum flavida, ocelloque nigro subapicali albo pupillato; posticis ocellis duobus, uno magno in costa, altero minore inter ramos medianos primum et secundum, margine externo obscure fulvo introrsum sinuato.

♀ ignota.

Hab. PANAMA, Chiriqui (*ex Staudinger*¹).

We described this species from specimens submitted to us by Dr. Staudinger, one of which he allowed us to retain.

CALIGO (I. p. 130).**Caligo eurylochus** (I. p. 131).

Caligo livius, Staud. Exot. Schmett. p. 215, t. 74 (♂) (1888)⁶.

To the localities given, add:—GUATEMALA, Panima in Vera Paz (*Champion*); PANAMA, Bugaba (*Champion*).

Dr. Staudinger has separated from *C. eurylochus* various specimens from Brazil, Peru, and Chiriqui under the name of *C. livius*, but says that they are perhaps only an extreme form of that species; in this we are inclined to agree with him.

Caligo oileus (I. p. 132).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).

Caligo memnon (I. p. 133).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), La Tinta and Panima in Vera Paz, Volcan de Atitlan (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); PANAMA, Bugaba, Tolé (*Champion*).

Caligo atreus (I. p. 135).

Caligo atreus, Staud. Exot. Schmett. p. 215, t. 75 (♂) (1888)⁵.

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).

Caligo uranus (I. p. 136).

To the localities given, add:—MEXICO, Cuesta de Misantla (*M. Trujillo*), Teapa (*H. H. Smith*); GUATEMALA, Cubilguitz and Teleman in Vera Paz (*Champion*).

ERYPHANIS (I. p. 136).

Eryphanis wardi (I. p. 137).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

Eryphanis æsacus (I. p. 137).

Eryphanis æsacus, Staud. Exot. Schmett. p. 217, t. 76 (♂) (1888)³.

To the localities given, add:—GUATEMALA, Cahabon (*Champion*).

NAROPE (I. p. 139).

2. Narope anartes.

Narope anartes, Hew. Boliv. Butt. p. 9 (1874)¹.

Narope sarastro, Staud. Exot. Schmett. p. 218, t. 76².

Alis rufo-fulvis, anticis falcatis, apicem versus cum margine externo anguste, et posticis ad apicem, nigro-fuscis: subtus pallidioribus, fusco et brunneo irroratis, fascia communi ab apice anticarum ad medium marginis interni posticarum sordide ochracea, in posticis utrinque fusco-nigro marginatis.

Hab. COSTA RICA, Cartago (*Underwood, in coll. Druce*).—COLOMBIA, Cauca Valley²; BOLIVIA¹; PERU; ARGENTINE REPUBLIC.

Mr. Druce has a single specimen of this widely-distributed insect, sent him by Mr. Underwood in a collection of moths from Costa Rica. It agrees with others from the Cauca Valley and Bolivia, purchased from Dr. Staudinger under the name of *N. sarastro*, which we are unable to separate from *N. anartes*, Hewitson.

ACTINOTE (I. p. 140).

Actinote anteias (I. p. 141).

Acræa anteias, Staud. Exot. Schmett. p. 81, t. 32⁴.

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Actinote guatemalena (I. p. 141).

To the localities given, add:—GUATEMALA, Chiacam in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*).

The single specimen received from the Santa Clara Valley, Costa Rica, does not differ from more northern examples, and it is probable, therefore, that *A. melampeplos* may prove to be nothing more than a variety of the present species.

Actinote nox (I. p. 142).

Acræa nox, Staud. Exot. Schmett. p. 82, t. 32⁵.

To the localities given, add:—MEXICO, Orizaba (*Elwes, Smith, F. D. G.*); GUATEMALA, Solola (*Richardson*), Volcan de Atitlan (*Champion*).

HELICONIUS (I. p. 143).

Heliconius fornarina (I. p. 145).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*), Pacific slope (*Conradt*).

Of this species we have a single small male captured by Mr. Conradt, in which the large yellow discal patch of the primaries is broken up into spots, owing to the greater encroachment of the black colour; but it is evidently only an extreme form of *H. fornarina*, which is confined to the Pacific slope of Guatemala.

Heliconius zuleika (I. p. 147).

Heliconius zuleika, ab. *albipunctata*, Riff. Berl. ent. Zeitschr. 1900, p. 199⁴.

To the localities given, add:—GUATEMALA, Panzos (*Conradt*); PANAMA, Bugaba, Tolé (*Champion*).

Sent us in abundance from Bugaba. Herr Riffarth⁴ has recently named a form of this species, from Chiriqui, having the spots on the primaries white (instead of yellow), ab. *albipunctata*. Intermediate specimens occur.

Heliconius telchinia (I. p. 149).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*), Omealca (*Trujillo*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Cahabon and Chiacam (*Champion*).

Heliconius charithonia (I. p. 151).

Heliconius charithonia, Staud. Exot. Schmett. p. 76, t. 31⁷.

To the localities given, add:—MEXICO, Tres Marias Is. (*Forrer*), Durango city (*Becker*), Acapulco (*Markham*), Tampico, Sierra Madre de Tepic, San Blas (*Richardson*), Rincon, La Venta, Tierra Colorada, Omilteme, Rio Papagaio, Cuernavaca, Atoyac,

Vera Cruz, Teapa (*H. H. Smith*), Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Heliconius hortensia (I. p. 151).

To the localities given, add:—MEXICO, Soledad (*H. H. Smith*), Orizaba (*F. D. G., H. H. Smith*); GUATEMALA, Solola (*Richardson*).

Heliconius montanus (I. p. 152).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Heliconius petiveranus (I. p. 153).

Heliconius petiverana demophoon, var. ? *chiriquensis*, Riff. Berl. ent. Zeitschr. 1900, p. 209¹⁰.

Heliconius petiverana, ab. *tristis*, Riff. loc. cit. p. 28¹¹.

To the localities given, add:—HONDURAS, Ruatan I. (*Gaumer*).

We have received specimens from many other additional localities, but it is unnecessary to mention them, as the species is almost universally distributed in Central America. Dr. Staudinger (*Iris*, 1896, pp. 295–299) has published some critical remarks on the synonymy of this species, with especial reference to the Central-American forms. The varieties described by Herr Riffarth^{10 11} are from Chiriqui or Costa Rica: *chiriquensis* has a very broad yellow band on the secondaries, and *tristis* has the corresponding band entirely wanting on the upperside and faintly indicated beneath; this latter form we have not seen.

Heliconius galanthus (I. p. 155).

Heliconius cydno, ab. *stübeli*, Riff. Berl. ent. Zeitschr. 1900, p. 199⁴.

Of this species we have a single male from Irazu, Costa Rica, in which the white band on the primaries is narrower and straighter, not entering the cell, so that the usual triangular discocellular black spot is absent. This agrees very closely with Riffarth's description of *H. cydno*, ab. *stübeli*, from Costa Rica⁴, except that there are no pale submarginal or marginal spots visible on the primaries.

18 (A). ***Heliconius cydno***.

Heliconius cydno, Doubl. & Hew. Gen. Diurn. Lep. i. t. 15. f. 3¹; Butl. & Druce, P. Z. S. 1874 p. 351².

Hab. ? COSTA RICA (*Van Patten*²).—COLOMBIA; ECUADOR; PERU.

The Costa Rican locality for this species seems to require confirmation. Van Patten's specimen is now in our collection.

Heliconius theudela (I. p. 157).

To the localities given, add:—PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Sent in abundance from Bugaba.

Heliconius hewitsoni (I. p. 158).

To the localities given, add:—PANAMA, Bugaba, Tolé, San Feliz (*Champion*).

Sent ns from various places in Chiriqui.

Heliconius magdalena (I. p. 159).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Volcan de Chiriqui (*Champion*).

Heliconius veræpacis (I. p. 159).

To the localities given, add:—GUATEMALA, Chiacam in Vera Paz (*Champion*).

Heliconius erato (I. p. 160).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

We have also received specimens of this common Tropical-American insect from many additional localities within our limits, but it is unnecessary to enumerate them. Dr. Staudinger (*Iris*, 1896, pp. 313–317) has described and named several varieties of this species, some of which are from Central America:—c. *eratonius*—Chiriqui, Colombia, Venezuela; d. *transiens*—Mexico, Honduras, Colombia; h. *viridis*—Central America, Colombia, Venezuela. The polymorphism of *H. erato* has already been noticed by us, and we do not think it necessary to reopen the subject.

EUEIDES (I. p. 161).

Eueides vibilia (I. p. 162).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).—COLOMBIA.

Eueides vulgiformis (I. p. 162).

To the localities given, add:—GUATEMALA, Cubilguitz in Vera Paz (*Champion*).

A single specimen received from Guatemala differs from those of more southern localities in having a fulvous longitudinal streak at the base of the primaries, extending to some distance beyond the first median branch, and the discal portion of the secondaries is pale above and whitish beneath. It closely approaches the South-American *E. edias*, Hew.

Eueides aliphera (I. p. 163).

To the localities given, add:—MEXICO, Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*),
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Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Panzos, Zapote, Volcan de Atitlan (*Champion*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).

Eueides lineata (I. p. 163).

To the localities given, add :—MEXICO, Cuesta de Misantla (*Trujillo*).

Eueides lybioides (I. p. 164).

To the localities given, add :—PANAMA, Bugaba, San Feliz (*Champion*), Veraguas (*Arcé*).

Sent us in abundance from Bugaba.

Eueides zorcaon (I. p. 165).

To the localities given, add :—MEXICO, Tampico (*Richardson*), Teapa (*H. H. Smith*); GUATEMALA, Purula, Cahabon, Chiacam (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba (*Champion*).

METAMORPHA (I. p. 166).

Metamorpha dido (I. p. 166).

Colænis dido, Staud. Exot. Schmett. p. 86, t. 34⁵.

To the localities given, add :—PANAMA, Bugaba (*Champion*), Chiriqui⁵.

COLÆNIS (I. p. 167).

Colænis phærusa (I. p. 167).

To the localities given, add :—MEXICO, Omealca, Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Atitlan (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Colænis delila (I. p. 168).

To the localities given, add :—MEXICO, Tres Marias Is. (*Forrer*), La Venta in Guerrero, Atoyac, Teapa (*H. H. Smith*), Jalapa (*F. D. G.*), Orizaba (*Elwes*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Chacoj, Teleman (*Champion*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba, Tolé (*Champion*).

AGRAULIS (I. p. 169).

Agraulis junio (I. p. 170).

To the localities given, add :—GUATEMALA, Volcan de Santa Maria (*Richardson*), San Isidro (*Champion*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).—ANTILLES, St. Vincent, Grenada.

Agraulis vanillæ (I. p. 171).

To the localities given, add:—NICARAGUA, Chontales (*Janson*).

We have also received specimens of this common insect from many additional localities within our limits, but it is unnecessary to quote them, and the same remark applies to *A. moneta*.

CLOTHILDA (I. p. 172).

Clothilda euryale (I. p. 173).

To the localities given, add:—MEXICO, Omilteme and Xucumanatlan in Guerrero (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

EUPTOIETA (I. p. 174).

Euptoieta claudia (I. p. 174).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Milpas in Durango (*Forrer*), Durango city (*Becker*), Amecameca (*F. D. G.*), Omilteme, Atoyac, Fortin (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, San Gerónimo (*Champion*).—COLOMBIA.

Euptoieta hegesia (I. p. 175).

Euptoieta hegesia, Staud. Exot. Schmett. p. 89, t. 36⁴.

To the localities given, add:—MEXICO, Durango city (*Becker*), Bolaños in Jalisco (*Richardson*), Venta de Zopilote, Acapulco, Rio Papagaio, Rincon, Atoyac, Fortin (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

SYNCHLOE (I. p. 176).

Synchloe lacinia (I. p. 176).

Chlosyne saundersii, Staud. Exot. Schmett. p. 95, t. 36¹⁸.

To the localities given, add:—SALVADOR (*fide Staudinger*¹⁸); HONDURAS, San Pedro Sula (*Wittkugel*).

Mr. H. H. Smith and other collectors have also sent us specimens from many additional localities which need not be enumerated.

Synchloe janais (I. p. 178).

To the localities given, add:—NORTH AMERICA, South-west Texas (*Morrison*).—MEXICO, Tampico (*Richardson*), Durango city (*Becker*), Tierra Colorada, Dos Arroyos, Rio Papagaio, Atoyac, Teapa (*H. H. Smith*), Jalapa (*Elwes, F. D. G.*), Coatepec (*Brooks*), Cuesta de Misantla (*Trujillo*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Synchloe hyperia (I. p. 179).

Chlosyne hippodrome, Staud. Exot. Schmett. p. 95, t. 36⁷.

To the localities given, add :—MEXICO, Milpas in Durango (*Forrer*), Sierra Madre de Tepic, Tehuantepec (*Richardson*), Acaguizotla, Rio Papagaio (*H. H. Smith*), Coatepec (*Brooks*), San Lorenzo (*Trujillo*); PANAMA, San Lorenzo (*Champion*).

Synchloe melanarge (I. p. 179).

To the localities given, add :—MEXICO, Acaguizotla, Amula, La Venta, Rincon (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).

We have now received six specimens of this species from Mexico.

Synchloe erodyle (I. p. 180).

To the localities given, add :—GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*).

Synchloe pæcile (I. p. 180).

Chlosyne pæcile, Staud. Exot. Schmett. p. 95, t. 36⁷.

To the localities given, add :—PANAMA, Bugaba (*Champion*).

We omitted to note in our diagnosis of this species that the submarginal row of spots on the primaries are white, as in *S. erodyle*.

6 (A). **Synchloe eumeda**. (Tab. CVIII. figg. 1, 2, ♂.)

Synchloë eumeda, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 96¹.

S. pæcili (formæ typicæ) similis, sed anticis maculis flavis in cellula et ea infra venam medianam evanescentibus, aliter fascia maculari ultra cellulam multo latiore, et punctis parvis submarginalibus flavis (nec albis); posticis fascia, venis divisa, ad cellulæ finem latissima, a costa ad marginem internum extendente aurantia, maculis quinque (nec quatuor) in serie submarginali rubris: subtus anticis maculis ad basin minoribus, aliis majoribus, omnibus flavis; posticis maculis nigris ad basin minoribus, maculis quinque submarginalibus rubris ut supra.

Hab. MEXICO, Mochitlan in Guerrero (*Baron*¹).

We have four specimens of this species, which we have now ascertained are all of the male sex.

6 (B). **Synchloe dryope**. (Tab. CVIII. figg. 3, 4, ♂.)

Synchloë dryope, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 96¹.

S. eumeda similis, sed fascia maculari communi flava (nec aurantia): subtus posticis ad basin maculis majoribus et lineis distinctis formantibus.

Hab. MEXICO, Jalisco (*Richardson*¹).

Of this species we have a single male specimen only; it is perhaps an extreme form of *S. eumeda*.

Synchloe marina (I. p. 181).

To the localities given, add:—MEXICO, Amula and Xucumanatlan in Guerrero (*H. H. Smith*).

8 (A). **Synchloe endeis**. (Tab. CVIII. figg. 5, 6, ♂.)

Synchloë endeis, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 97¹.

S. marinæ similis, sed anticis maculis omnibus et posticis fascia discali albidis: subtus anticis fere dimidio basali, macula subapicali aliisque duabus ad angulum analem, ferrugineis; posticis macula costali ad basin, fascia inter lineis nigris discalibus, fasciaque submarginali, ferrugineis.

♀ mari similis.

Hab. MEXICO, Sierra Madre de Tepic (*Richardson*¹).

Mr. Richardson has sent us a long series of this species from Western Mexico; it differs constantly from *S. marina* in the characters noted above*.

8 (B). **Synchloe hylæus**. (Tab. CVIII. figg. 7, 8, ♂.)

Synchloë hylæus, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 97¹.

S. marinæ similis, sed anticis fascia centrali macularum magis obvia, cum serie in disco posticarum fasciam communem formante, anticis maculis omnibus flavis (nec albis): subtus anticis macula rubra in cellula et ea ad costæ basin posticarum absentibus.

♀ mari similis.

Hab. MEXICO, Durango city (*Becker*¹).

A northern form of *S. marina*, of which we possess one male and three females, agreeing well together.

Synchloe gaudialis (I. p. 182).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

Sent us in numbers from Teapa.

Synchloe bonplandi (I. p. 182).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

To judge from the description, *Chlosyne brunhilda*, Staud. (Exot. Schmett. p. 96), from Chiriqui, seems to be the form of this species with the basal half of the secondaries fulvous, instead of yellow, noticed by us in the early part of this work.

ERESIA (I. p. 183).

Eresia eranites (I. p. 185).

To the localities given, add:—MEXICO, Jalapa (*F. D. G.*), Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Sinanja and Chiacam in Vera Paz (*Champion*); PANAMA, Bugaba (*Champion*).

* There is an error in our original description¹: for “the whitish-black marginal spots” read “the whitish and black spots.”

Eresia phillyra (I. p. 185).

To the localities given, add:—MEXICO, Jalapa (*F. D. G.*), Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Sinanja in Vera Paz (*Champion*).

Eresia alsina (I. p. 186).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

Eresia myia (I. p. 188).

To the localities given, add:—MEXICO, Sierra Madre de Tepic (*Richardson*), Atoyac, Teapa (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); HONDURAS, San Pedro Sula (*Wittkugel*).

Eresia ofella (I. p. 189).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Eresia clara (I. p. 189).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).

ARGYNNIS (to follow the genus *Eresia*, I. p. 189).

Argynnis, Fabr. in Illiger's Mag. vi. p. 283 (1807).

1. Argynnis nokomis.

Argynnis nokomis, W. H. Edwards, Proc. Acad. Phil. 1862, p. 221 (♂)¹; Butt. N. Am. i., *Argynnis*, iv. tabb. (♂ ♀)²; Snyder, Occasional Memoirs of the Chicago Ent. Soc. i. p. 33 (1900)³.

♀. Alis obscure fuscis, maculis in seriebus tribus irregularibus marginibus externis subparallelis nigris, fascia communi lata, ad apicem antecarum in maculas varias fracta ad angulum analem posticarum extendente, albida, maculis ad margines externos albis, aliis nigris quatuor transversis in cellula antecarum: subtus anticis rufo-fulvis, fere dimidio exteriori pallide flavo, maculis nigris ut in pagina superiore, maculis tribus apicem versus et serie submarginali (nisi ad angulum analem) argenteis, costa viridi-ochracea; posticis quoque viridi-ochraceis, fascia lata margini externo propiore, venis divisa, pallide flava, maculis submarginalibus septem, octo in serie subparallelis interioribus, aliis basin propioribus, omnibus argenteis nigro circumcinctis.

Hab. NORTH AMERICA, Rocky Mountains¹, Bitter Root Mountains², Southern Utah³, Arizona³.—MEXICO, near Durango city (*Becker*).

Mr. Becker has sent us a single female specimen of this species from Durango. It differs from Edwards's figures of that sex of *A. nokomis*, and from an Arizonan female in our collection, having rather more than the basal half of each wing almost uniformly fuscous between the black spots, and on the secondaries beneath the interspaces between the silvery spots from the base to the middle obscure greenish ochreous

colouring, the Mexican insect in this respect being almost intermediate between the female of *A. nokomis*, Edw., and *A. leto*, Behr.

2. **Argynnis nitocris**, var. **cærulescens**. (Tab. CXII. figg. 15, 16, ♂; 17, 18, ♀.)

Argynnis nitocris, Edw., var. *cærulescens*, Holland, Ent. News, xi. p. 332 (Jan. 1900)¹; Snyder, Occas. Memoirs of the Chicago Ent. Soc. i. p. 33 (1900)².

Alis dimidio basali nigris, dimidio distali læte fulvis, anticis in cellula et ultra eam maculis transversis plus minusve indistinctis fulvis, anticis et posticis lineis duabus parallelibus ad margines exteriores, maculis variis in seriebus duabus subparallelibus interioribus, in anticis maculis exterioribus sagittiformibus, in posticis maculis aliis discalibus, omnibus nigris: subtus anticis (nisi ad apicem) rufis, maculis variis nigris notatis, apice ochraceo, maculis sagittiformibus paginæ superioris et quinque apici propioribus argenteo extrorsum limbatis, aliis tribus subapicalibus quoque argenteis; posticis dimidio basali ferrugineis, dimidio distali ochraceis, maculis variis argenteis nigro circumcinctis.

♀. Alis obscure fuscis, maculis nigris (basin versus fere obsoletis), anticis maculis in seriebus tribus plus minusve margini exteriori subparallelibus (iis in medio majoribus et quadratis) albidis, cæruleo tinctis; posticis maculis magnis elongatis in serie submarginali cærulescentibus et nigro punctatis, maculis aliis minoribus margini exteriori propioribus albidis, cæruleo lavatis: subtus anticis rufis, in costa et apicem versus flavis, maculis et lineis variis sicut in mari notatis; posticis dimidio basali brunneis aut obscure olivaceis, parte distali flava venis nigris divisa, maculis argenteis nigro circumcinctis sicut in mari sed majoribus; ciliis (nisi ad venarum fines) albis.

Hab. MEXICO, Rio Piedras Verdes, Chihuahua² 7100–7300 feet (*Tyler-Townsend*¹).

Dr. Holland has been kind enough to give us a male and two females of this handsome insect, many specimens of which were recently captured by Mr. Townsend in the Sierra Madre region of Chihuahua. The amount of blue on the upperside of the female seems to be somewhat variable. The true *A. nitocris* inhabits Arizona and Nevada. This insect is a very close ally of *A. nokomis* and *A. leto*.

MELITÆA (to follow the genus *Argynnis*).

Melitæa, Fabr. in Illiger's Mag. vi. p. 284 (1807); Doubl. Gen. Diurn. Lep. p. 177.

The four species now referred to this genus would be almost equally well placed in *Phyciodes*, near *P. cyneas*, *P. fulvia*, &c. We follow the North-American lepidopterists, however, in referring *M. minuta* and its allies to *Melitæa*, the differences between the two genera not being very evident.

1. *Melitæa minuta*.

Melitæa minuta, Edw. Proc. Acad. Phil. 1861, p. 161¹; Trans. Am. Ent. Soc. ix. p. 8²; Mead, Report Wheeler Exped. v. p. 761, t. 35. ff. 1, 2³.

Alis fulvis, basin versus obscurioribus lineis variis sinuatis nigris transeuntibus: subtus anticis fere ut supra, sed pallidioribus, ad apicem albescentibus; posticis albidis, fasciis tribus fulvis, lineis interruptis nigris, marginatis, una basali recta, secunda mediana valde sinuata, tertia submarginali; anticis et posticis linea angustissima marginali nigra notatis; ciliis alterne albis et nigris.

♀ mari similis.

Hab. NORTH AMERICA, Colorado², Arizona², New Mexico³, Texas^{1 2}. — MEXICO, Northern Sonora (*Morrison*).

Morrison has sent us numerous specimens of this insect from Sonora, agreeing well with others from more northern localities in our collection and also with Mead's figure³. *M. minuta* appears to be the North-American representative of the European *M. cinxia*.

2. *Melitæa nympha*.

Melitæa nympha, Edw. Papilio, iv. p. 53¹.

M. minutæ similis, sed fascia communi discali sinuata flavescente aut albida: subtus posticis fascia mediana albida lineis tribus interruptis nigris notatis, linea marginali nigra latiore.

♀ mari similis, sed fascia communi fulvescentiore.

Hab. NORTH AMERICA, Arizona¹. — MEXICO, Northern Sonora (*Morrison*).

Ten specimens sent us from Sonora under the name of *M. arachne*, Edw., appear to be really referable to *M. nympha*, the types of which were obtained in Arizona. It is a very close ally of *M. minuta*, but differs constantly in having a treble series of interrupted black lines on the median band of the secondaries beneath.

3. *Melitæa beckeri*, sp. n. (Tab. CVIII. figg. 9, 10, ♂.)

Alis fuscis, anticis maculis sex in cellula, tribus infra eas, fascia latissima ultra cellulam venis divisa, sordide flavis aut ferrugineis, punctis tribus in margine externo albis; posticis fascia sinuata maculari ultra cellulam sordide flava, altera ultra eam et macula in cellula ferrugineis, serieque macularum albescentium margine externo: subtus anticis fulvis, basin versus ferrugineis, apud cellulæ finem linea nigra transversa valde angulata alam transeunte, ad marginem externum inter venas lunulis albidis notatis, et lineis nigris marginatis; posticis albidis, fasciis tribus ferrugineis transversis nigro limbatis, una basali, secunda per cellulam maculam albidam includente, tertia submarginali interrupta, lineis duabus angustis discalibus valde sinuatis, alia marginali et venarum fines, nigris.

Hab. MEXICO, Durango city (*Becker*).

We have ventured to describe this species from a single male sent us by Becker from North-west Mexico. It belongs to the group of *M. palla*, Boisd., which includes *M. gabbi*, *M. whitneyi*, and *M. hoffmanni*, Behr, but cannot be identified with either of these forms.

4. *Melitæa schausi*, sp. n. (Tab. CVIII. figg. 11, 12, ♂.)

M. beckeri similis sed minor, alis ad basin et fascia communi fulvescentioribus; posticis fascia sinuata maculari angustiore: subtus anticis sicut in *M. beckeri*; posticis fasciis ferrugineis magis extensis, lineis nigris magis approximatis, maculis basalibus nigro circumcinctis.

Hab. MEXICO, Paso de San Juan in Vera Cruz (*coll. Schaus*).

Our description of this species is taken from a male, one of three specimens belonging

to Mr. Schaus. It is a close ally of *M. beckeri*, but differs chiefly in the markings of the underside of the secondaries, as well as in the other points mentioned above.

Two species of *Melitæa*, *M. pola* and *M. sonoræ*, have been described by Boisduval as from Sonora (Ann. Soc. Ent. Belg. xii. p. 56), but it is not certain that they were found within our limits. Dr. Skinner, in his 'Synonymic Catalogue of N. American Rhopalocera,' p. 14 (1898), places these names as synonyms of *M. whitneyi* and *M. gabbi*, Behr, respectively. We have a specimen labelled "Sonora" which agrees with others sent us by Strecker as *M. gabbi*. Further evidence is required before these so-called species, which possibly are only varieties of a single N.-American form, can be included in our fauna.

PHYCIODES (I. p. 190).

Phyciodes cyneas (I. p. 191).

To the localities given, add:—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Durango city (*Becker*), Pinal, Puebla (*Elwes*).

Phyciodes theona (I. p. 192).

Melitæa theona, Boisd. Ann. Soc. Ent. Belg. xii. p. 56³.

To the localities given, add:—MEXICO, N. Sonora³ (*Morrison*), Durango city (*Becker*), Presidio de Mazatlan (*Forrer*), Tampico, Lake Chapala (*Richardson*), Tierra Colorada, Xucumanatlan, Dos Arroyos, Omilteme, Soledad, Acaguizotla, Rio Papagaio, Atoyac (*H. H. Smith*); GUATEMALA, Dueñas (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Specimens from Arizona and Sonora, one of which has been sent us under the name *Melitæa thekla*, and another as *M. bollii*, Edw., are redder on the upperside, but do not differ in other respects. The seven examples from Dueñas, including both sexes, are smaller, but in colour and marking are identical.

Phyciodes ezra (I. p. 192).

Phyciodes ezra, Staud. Exot. Schmett. p. 91, t. 36³.

To the localities given, add:—PANAMA, Panama city (*J. J. Walker*, *Hepburn*).

Phyciodes tharos (I. p. 193).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*), Orizaba (*Elwes*), Vera Cruz (*F. D. G.*).

5 (A). **Phyciodes phaon**.

Melitæa phaon, Edw. Proc. Ent. Soc. Phil. ii. p. 505¹.

Phyciodes phaon, Edw. Butt. N. Am. ii., *Phyciodes*, t. 2. ff. 14–17²; Aaron, Papilio, iv. p. 177³.

BIOL. CENTR.-AMER., Rhopal., Vol. II., June 1901.

4 s

P. tharos similis, sed anticis fascia maculari sinuata discali pallide flava: subtus anticis maculis nigris magis extensis; posticis valde fusco marmoratis.

Hab. NORTH AMERICA, Georgia¹, Gulf States as far north as Kansas².—MEXICO, Sonora (*Morrison*³), Vera Cruz (*F. D. G.*).

Two females of this species were taken by Godman at Vera Cruz in December 1888, and it has also been recorded from Northern Mexico by Aaron³. Mr. Edwards² figures both the summer and winter forms of *P. phaon*, our Mexican specimens agreeing with the latter.

Phyciodes picta (I. p. 193).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*).

Phyciodes orseis (I. p. 193).

To the localities given, add:—MEXICO, Orizaba (*Elwes*), Cuesta de Misantla (*M. Trujillo*).

7 (A). **Phyciodes mylitta**.

Melitæa mylitta, Edw. Proc. Acad. Phil. 1861, p. 160¹; Proc. Ent. Soc. Phil. ii. p. 504².

Melitæa collina, Behr, Proc. Calif. Acad. Sci. 1863, p. 86³.

Melitæa callina, Boisd. Ann. Soc. Ent. Belg. xii. p. 54⁴.

Melitæa epula, Boisd. loc. cit. p. 54⁵.

P. orseidi similis, sed colore fulvo magis extenso lineas distinctas fuscas transversas indicante.

Hab. NORTH AMERICA, California⁵, Southern United States¹⁻³.—MEXICO, Northern Sonora⁴ (*Morrison*).

Morrison has sent us seven specimens of this species, including both sexes, from Sonora. It is a very close ally of *P. tharos* and *P. orseis*. We have already mentioned *P. mylitta* amongst the unidentified Central-American forms (*antea*, I. p. 209).

Phyciodes boucardi (I. p. 194).

To the localities given, add:—MEXICO, Xucumanatlan, Acaguizotla, Omilteme, and Amula in Guerrero (*H. H. Smith*), Bolaños in Jalisco (*Richardson*).

Phyciodes vesta (I. p. 195).

To the localities given, add:—MEXICO, Durango city (*Becker*), Orizaba (*Elwes*), Atoyac (*H. H. Smith*).

Sent us in numbers from Atoyac.

Phyciodes pallescens (I. p. 195).

To the localities given, add:—MEXICO, Sierra Madre de Tepic, Lake Chapala (*Richardson*), Jalisco (*Schumann*), Puebla (*Elwes*), Atlixco, Morelia, and Cuernavaca

(*F. D. G.*), Cordova (*Rümeli*), Xucumanatlan, Acaguizotla, La Venta, Venta de Zopilote (*H. H. Smith*), Acapulco (*J. J. Walker*).

We now have a very long series of this insect.

Phyciodes elada (I. p. 196).

To the localities given, add :—MEXICO, Durango city (*Becker*), Lake Chapala, Jalisco (*Richardson*), Tepetlapa, Amula, Hacienda de la Imagen and Venta de Zopilote in Guerrero (*H. H. Smith*).

We now have many examples of this species from Western Mexico.

Phyciodes imitata (I. p. 196).

To the localities given, add :—MEXICO, Northern Sonora (*Morrison*).

13 (A). **Phyciodes dymas**. (Tab. CVIII. figg. 13, 14, ♂.)

Melitæa dymas, Edw. Canad. Ent. ix. p. 190¹.

Melitæa larunda, Strecker, Lep. Rhop. & Het. p. 130².

P. imitata similis, sed anticis fascia costali ultra cellulam pallida: subtus posticis lineis nigris discalibus interruptis.

♀ mari similis.

Hab. NORTH AMERICA, California, Texas^{1 2}.—MEXICO, Northern Sonora (*Morrison*), Alamos (*Buchan-Hepburn*).

This species, as we had already anticipated, inhabits Northern Mexico, whence a long series has been sent us by Mr. Morrison from Sonora, and one from Alamos in Chihuahua by Buchan-Hepburn. It is a very small narrow-winged insect, differing from *P. imitata* as noted above. We figure one of Mr. Morrison's specimens.

13 (B). **Phyciodes hepburni**, sp. n. (Tab. CVIII. figg. 15, 16, ♂.)

P. imitata similis, sed multo obscuriore, fascia maculari discali communi (in anticis interrupta) et macula parva in cellula, pallide flavis: subtus posticis fasciis albescentioribus.

♀ mari similis.

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*).

We have four specimens of this little species, including both sexes. In its narrow wings it agrees with *P. dymas* and *P. imitata*, differing from the latter as noted above. *P. elada*, which is another nearly allied form, has broader wings and the band on the underside of the secondaries less distinctly defined.

13 (C). **Phyciodes anomalus**. (Tab. CVIII. figg. 17, 18.)

Phyciodes anomalus, Godm. & Salv. Trans. Ent. Soc. 1897, p. 243¹.

Alis fusco-nigris, ciliis albo interruptis; anticis dimidio distali punctis albis notato; posticis fascia mediana fulva intra eam punctis quibusdam ejusdem coloris et extra eam punctis albis: subtus pallidioribus,

anticis punctis albis majoribus lunulis submarginalibus saturate fulvis; posticis fascia mediana cervina extra eam lunulis nigris et punctis albis seriatim positis, lunulis fulvis submarginalibus nigro limbatis et intra eas lunulis albis, ad basin fulvo et albido maculatis, maculis omnibus late nigro marginatis; palpis fuscis, subtus albis; abdomine subtus albido supra fusco, lateribus albido punctatis.

Hab. MEXICO, Colima (*mus. Staudinger*¹).

A distinct species with no near ally. We have seen but one specimen, and that in Dr. Staudinger's collection.

16 (A). **Phyciodes faustus.** (Tab. CVIII. figg. 19, 20.)

Phyciodes faustus, Godm. & Salv. Trans. Ent. Soc. 1897, p. 243¹.

P. ptolyca similis, sed alis anticis aliter punctatis, maculis duabus medianis (inferiore majore fere rotundata), duabus subapicalibus (inferiore parva, superiore elongata), fascia mediana posticarum integra, lineola submarginali evanescente.

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).

Though compared with *P. ptolyca*, this species has only a general resemblance to that insect. The spots on the primaries are fewer in number and differently placed, only a small one remaining in the end of the cell with a larger one below it. The wings, too, are narrower.

Phyciodes fragilis (I. p. 198).

To the localities given, add:—MEXICO, San Blas (*Richardson*), Misantla, Vera Cruz (*F. D. G.*), Orizaba (*Elwes*), Atoyac, Teapa (*H. H. Smith*).

Phyciodes texana (I. p. 200).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*), Pinos Altos in Chihuahua, Rio Mescales (*Buchan-Hepburn*), Ciudad Victoria, Sierra Madre de Tepic, Lake Chapala (*Richardson*), Durango city (*Becker*), Venta de Zopilote, Acaguizotla (*H. H. Smith*), Morelia, Cuernavaca, Orizaba (*F. D. G.*).

Phyciodes ptolyca (I. p. 201).

To the localities given, add:—MEXICO, Jalapa, Misantla (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*); COSTA RICA, Santa Clara Valley (*Zurcher*).

24 (A). **Phyciodes phlegias**, sp. n. (Tab. CVIII. figg. 21, 22, ♂.)

P. ptolyca similis, sed anticis ad marginem externum magis erosis, maculis majoribus læte fulvis; posticis fascia transversa lata ultra cellulam lineaque angusta interrupta margini propiore coloris ejusdem: subtus posticis fascia transversa albida, introrsum costam versus litura rubro-fusca notatis, extrorsum ad marginem externum fusco-rubro suffusis.

Hab. HONDURAS (*ex Staudinger*).

We possess two males of this species. It is a close ally of *P. ptolyca*, differing as noted above.

Phyciodes tulcis (I. p. 203).

To the localities given, add :—MEXICO, Tampico and Ciudad Victoria in Tamaulipas, Sierra Madre de Tepic, San Blas (*Richardson*), Vera Cruz (*F. D. G.*), Dos Arroyos, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Phyciodes ardys (I. p. 204).

To the localities given, add :—MEXICO, Omilteme, Acaguizotla, Soledad, Amula (*H. H. Smith*), Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*); NICARAGUA, Matagalpa (*Richardson*).

With the long series of specimens we now possess from Mexico, we are convinced that *P. hermas* (Hew.) cannot be separated from *P. ardys*, of which *P. subota* and *P. drymæa*, G. & S., are probably only extreme forms.

32 (A). **Phyciodes alexon**. (Tab. CVIII. figg. 23, 24, ♂; 25, 26, ♀.)

Phyciodes alexon, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 353 (♂ ♀) (1889)¹.

P. nebulosæ affinis, sed anticarum maculis omnibus pallide flavidis (nec ferrugineis), lineis et maculis dimidiis distalis posticarum quoque flavidis distinguenda.

♀ mari similis, sed major et maculis omnibus magis distinctis.

Hab. MEXICO, Cuernavaca, Rincon, and Acaguizotla in the Sierra Madre del Sur (*H. H. Smith*¹).

Described from three males and one female sent us by Mr. H. H. Smith¹. Allied to *P. nebulosa*, having elongated wings and the under surface similarly coloured.

Phyciodes argentea (I. p. 207).

To the localities given, add :—MEXICO, Atoyac (*H. H. Smith, Schumann*); GUATEMALA, Solola (*Richardson*).

40 (A). **Phyciodes cyno**. (Tab. CVIII. figg. 27, 28, ♂; 29, 30, ♀.)

Phyciodes cyno, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 354 (♂) (1889)¹.

♂. *P. otani* similis, sed anticis maculis discalibus majoribus et plaga sericea nulla: subtus anticis (apice excepto) fere unicoloribus, lineolis ad basin et costam versus obsoletis vix notatis; posticis plerumque grisescientioribus, maculis omnibus sicut in *P. otane*, sed magis distinctis.

♀. Feminae *P. sopoli* similis, sed maculis omnibus albis (nec fulvis), iis ad basin propioribus minutioribus; posticis disco rufo-fulvo suffusis, fascia angulata interiore multo angustiore: subtus grisescientioribus, anticis maculis albis ut supra.

Hab. MEXICO, Orizaba (*H. J. Elwes*¹), Cuesta de Misantla (*coll. Schaus*).

Our original description of this species was taken from a single male specimen captured by Mr. Elwes, but we have since seen a pair of it in Mr. Schaus's collection; our figure of the female is taken from one of the latter.

MICROTIA (I. p. 210).

Microtia elva (I. p. 210).

Microtia elva, Staud. Exot. Schmett. p. 94, t. 36³.

To the localities given, add:—MEXICO, Alamos (*Buchan-Hepburn*), San Blas, Jalisco (*Richardson*), Mazatlan (*H. Edwards*), Dos Arroyos, Chilpancingo, Amula, Tierra Colorada, Xucumanatlan, Rio Papagaio, Rincon, Acaguizotla (*H. H. Smith*), Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

MORPHEIS (I. p. 211).

Morpheis ehrenbergi (I. p. 211).

Anemeca ehrenbergii, Staud. Exot. Schmett. p. 96, t. 36³.

To the localities given, add:—MEXICO, Bolaños, Lake Chapala (*Richardson*), Tepetlapa, Hacienda de la Imagen, Soledad, Chilpancingo, Xucumanatlan (*H. H. Smith*), Amecameca (*F. D. G.*).

EUREMA (I. p. 211).

Eurema lethe (I. p. 212).

Hypanartia lethe, Staud. Exot. Schmett. p. 96, t. 37⁴.

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

We have also received specimens from many other additional localities, but it is not necessary to mention them.

Eurema kefersteini (I. p. 213).

Hypanartia kefersteini, Staud. Exot. Schmett. p. 97, t. 37⁴.

To the localities given, add:—MEXICO, Atoyac (*Dugès*); GUATEMALA, San Gerónimo, Chiacam (*Champion*).

Eurema dione (I. p. 214).

Hypanartia dione, Staud. Exot. Schmett. p. 97, t. 37².

To the localities given, add:—? MEXICO²; GUATEMALA, Volcan de Santa Maria (*Richardson*), Chiacam (*Champion*).

Eurema arcæi (I. p. 214).

To the localities given, add:—PANAMA, Bugaba (*Champion*).

VANESSA (I. p. 214).

Vanessa antiopa (I. p. 215).

To the localities given, add:—MEXICO, Durango city (*Becker*), Pinal, Puebla (*Elwes*), Omilteme (*H. H. Smith*), Jalapa (*F. D. G.*).

GRAPTA (I. p. 216).

Grapta g-argenteum (I. p. 216).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*).

1 (A). **Grapta interrogationis**.

Papilio interrogationis, Fabr. Ent. Syst., Supp. p. 424¹.

Grapta interrogationis, Doubl. & Hew. Gen. Diurn. Lep. i. p. 197².

Polygonia interrogationis, Scudd. Butt. E. U. S. i. p. 319, t. 3. ff. 8–13³.

Papilio c-aureum, Cram. Pap. Exot. t. 19. ff. E, F⁴; Smith & Abbot, Lep. Ins. Georg. i. t. 11⁵.

Vanessa c-aureum, Boisd. & Lec. Lép. Amér. Sept. p. 192, t. 51⁶.

Grapta umbrosa, Lintn. Trans. Am. Ent. Soc. ii. p. 313⁷; Edw. Butt. N. Am. i., *Grapta*, t. 4⁸.

Grapta fabricii, Edw. Trans. Am. Ent. Soc. iii. p. 5⁹; Butt. N. Am. i., *Grapta*, t. 5¹⁰.

Alis fulvis, anticis margine externo late et posticis fere omnino rufo-fusco notatis, area mediana nigro maculatis, marginibus ipsis cæruleo-griseis: subtus rufo-brunneis et griseo variegatis; posticis littera C aurea aut argentea interrupta notatis.

Var. *umbrosa*, posticis (nisi ad basin et regione costali) nigro-fuscis.

Hab. NORTH AMERICA^{1–10}, Nova Scotia, Canada, United States.—MEXICO, Durango city (*Becker*).

Of this important addition to the Mexican fauna Mr. Becker has sent us two specimens, one belonging to the form *fabricii*, the other to *umbrosa*. Mr. Edwards gives excellent figures of both these varieties, and states that he has bred them from the same batch of eggs.

Grapta haroldi (I. p. 217).

To the locality given, add:—MEXICO, Amecameca (*F. D. G.*).

Godman captured a single worn specimen of this species on the slopes of Popocatepetl, near Amecameca, in 1888.

PYRAMEIS (I. p. 217).

Pyrameis cardui (I. p. 217).

To the localities given, add:—MEXICO, Durango city (*Becker*), Bolaños (*Richardson*), Atoyac (*H. H. Smith*).

Pyrameis huntera (I. p. 218).

To the localities given, add:—MEXICO, N. Sonora (*Morrison*), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Milpas in Durango (*Forrer*), Volcan de Ixtaccihuatl 11,500 feet (*Richardson*), Omilteme, Xucumanatlan, Atoyac (*H. H. Smith*), Jalapa (*F. D. G.*), Cuesta de Misantla (*Trujillo*); GUATEMALA, Volcan de Atitlan, Chiacam (*Champion*).

Pyrameis carye (I. p. 219).

To the localities given, add:—MEXICO, Durango city (*Becker*), Orizaba (*F. D. G.*), Mexico city (*H. H. Smith*).—JUAN FERNANDEZ I. (*J. J. Walker*).

Pyrameis atalanta (I. p. 219).

To the localities given, add:—MEXICO, Tampico in Tamaulipas (*Richardson*), Durango city (*Becker*), Jalapa (*F. D. G.*), Cuesta de Misantla (*Trujillo*).

JUNONIA (I. p. 219).

Junonia cænia (I. p. 220).

To the localities given, add:—MEXICO, Durango city (*Becker*), Sierra Madre de Tepic, Bolaños (*Richardson*), Jalisco (*Schumann*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, San Francisco (*Rogers*).

The specimens from the above-quoted Mexican localities belong to a very dark form in which the pale subapical patch on the primaries is either wholly absent or very faintly indicated. We have also received examples of this common American species from many other additional localities.

2. **Junonia vellida**.

Papilio vellida, Fabr. Mant. Ins. ii. p. 35¹; Don. Ins. of New Holland &c. t. 25².

Vanessa calybe, Godt. Enc. Méth. ix. p. 317³.

Cynthia hampstediensis, Steph. Ill. Brit. Ent., Haust. i. p. 48, t. 5. ff. 3, 4⁴.

J. cæniæ similis, sed posticis ocellis marginem externum versus fulvo circumcinctis.

Hab. COSTA RICA, Irazu (*Rogers*).—AUSTRALASIA; SAMOA IS.; JAVA; SUMATRA, &c.

Rogers sent us a single specimen of this well-known eastern species from Costa Rica, and we have no reason to doubt that he obtained it there; the same remark applies to *Pyrameis kershawi*, which we have already included (*anteà*, I. p. 218) in our list on his authority. Possibly both species have been introduced into Central America.

EUNICA (I. p. 223).

Eunica caresa (I. p. 224).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Eunica augusta (I. p. 226).

Eunica augusta, Staud. Exot. Schmett. p. 110, t. 40³.

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Eunica modesta (I. p. 228).

To the localities given, add:—MEXICO, Tampico, Sierra Madre de Tepic (*Richardson*), Durango city (*Becker*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Tolé (*Champion*).

Eunica tatila (I. p. 229).

To the localities given, add :—MEXICO, Ciudad Victoria and Tampico (*Richardson*), Coatepec (*Brooks*), Atoyac (*H. H. Smith*) ; HONDURAS, San Pedro Sula (*Wittkugel*).

MYSCELIA (I. p. 229).

We have recorded a species of *Myscelia* from Lower California, in 1889, thus extending the distribution of this genus.

Myscelia cyaniris (I. p. 230).

Myscelia cyaniris, Staud. Exot. Schmett. p. 112, t. 41³.

To the localities given, add :—MEXICO, Atoyac (*Schumann*, *H. H. Smith*) ; GUATEMALA, Volcan de Santa Maria (*Richardson*) ; HONDURAS, San Pedro Sula (*Wittkugel*) ; COSTA RICA, Santa Clara Valley (*Zurcher*).

Myscelia ethusa (I. p. 232).

♀. *Myscelia rogenhoferi*, Feld., anteà, i. p. 231, t. 24. ff. 3, 4.

♂. *Myscelia pattenia*, Butl. & Druce, anteà, i. p. 232.

To the localities given, add :—MEXICO, Tampico (*Richardson*), Coatepec (*Brooks*) ; GUATEMALA, Volcan de Santa Maria (*Richardson*) ; NICARAGUA, Matagalpa (*Richardson*).

With our large amount of additional material (twenty-nine specimens in all), including seven pairs from various localities, we find that *M. rogenhoferi* is the female, and *M. pattenia* a form of the male of *M. ethusa*. The males from Nicaragua and Costa Rica (*M. pattenia*) have all the spots on the primaries beyond the cell white, and the inner fasciæ of the secondaries separated into two more or less parallel lines, in this respect being very like the females, which differ constantly from the other sex in having two transverse greyish fasciæ on the underside of these wings. We rather hastily concluded that the sexes of *M. rogenhoferi* differed in the same way as those of *M. leucocyanea*, whereas all our numerous specimens of the former prove to be females. One of the males from Guatemala is intermediate between *M. ethusa* and *M. pattenia* as regards the colour of the spots on the primaries.

Myscelia cyananthe (I. p. 233).

To the localities given, add :—MEXICO, Cacahuamilpa (*F. D. G.*).

EPIPHILE (I. p. 233).

Epiphile adrasta (I. p. 234).

Epiphile adrasta, Staud. Exot. Schmett. p. 111, t. 41⁴.

To the localities given, add :—MEXICO, Jalapa (*F. D. G.*), Cuesta de Misantla (*Trujillo*), Coatepec (*Brooks*), Atoyac (*H. H. Smith*) ; NICARAGUA, Matagalpa (*Richardson*).

BOLBONEURA (I. p. 237).

Bolboneura sylphis (I. p. 237).

Bulboneura sylphis, Staud. Exot. Schmett. p. 114, t. 41³.

To the localities given, add:—MEXICO, Savana Grande in Guerrero (*H. H. Smith*), Coatepec (*Brooks*).

TEMENIS (I. p. 238).

Temenis ariadne (I. p. 238).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Cahabon, Chiacam (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

NICA (I. p. 239).

Nica canthara (I. p. 239).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

EPICALIA (I. p. 240).

Epicalia esite (I. p. 241).

To the localities given, add:—MEXICO, Omealca (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*).

Epicalia nyctimus (I. p. 242).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Atoyac, Teapa (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*).

Epicalia chromis (I. p. 243).

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Champion*).

Epicalia aglaura (I. p. 244).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

EUBAGIS (I. p. 244).

Eubagis theseus (I. p. 246).

To the localities given, add:—MEXICO, Rincon in Guerrero (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Eubagis postverta (I. p. 250).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Cuesta de Misantla (*Trujillo*), La Venta, Rio Papagaio, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

Eubagis dyonis (I. p. 250).

To the localities given, add:—MEXICO, Acaguizotla, Venta de Zopilote, Atoyac (*H. H. Smith*), Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*), Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Eubagis glauce (I. p. 251).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*), Coatepec (*Brooks*); GUATEMALA, Senahu, Sabo, San Gerónimo (*Champion*).

HÆMATERA (I. p. 251).

Hæmatera pyramus (I. p. 252).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).

CYCLOGRAMMA (I. p. 252).

Cyclogramma pandama (I. p. 253).

To the localities given, add:—MEXICO, Omilteme (*H. H. Smith*), Jalapa, Orizaba (*F. D. G.*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

Cyclogramma bacchis (I. p. 253).

Cyclogramma bimaculata, Staud. Exot. Schmett. p. 97, t. 40³.

To the localities given, add:—MEXICO, Tepetlapa in Guerrero (*H. H. Smith*).

CALLICORE (I. p. 254).

Callicore astala (I. p. 254).

To the localities given, add:—MEXICO, Jalapa (*F. D. G.*), Orizaba (*Elwes*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

1 (A). **Callicore asteria**. (Tab. CVIII. figg. 31, 32, ♂.)

Callicore asteria, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 97¹.

C. astalæ similis, sed anticis macula nitente cærulea mediana absente: subtus anticis nigris, ad basin fascia angusta sinuata mediana et ad apicem (linea submarginali excepta) albis, ad cellulæ finem plaga coccinea notata; posticis sicut in *C. astala*, sed apicem versus fusco-brunneo suffusis.

♀ nobis ignota.

Hab. MEXICO, San Blas (*Richardson*¹).

A single male from the western coast of Mexico is the only one of this species we have as yet seen.

Callicore anna (I. p. 255).

To the localities given, add:—MEXICO, Omealca, Cuesta de Misantla (*Trujillo*), Atoyac, Fortin, Teapa (*H. H. Smith*); GUATEMALA, Santa Maria (*Richardson*), Sabo in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*).

Our series contains two males from Cordova in which the lines forming the double figure of eight on the secondaries beneath are partially or almost entirely wanting, and the two outer lines are fused into one.

4 (A). **Callicore beleses**. (Tab. CVIII. figg. 33, 34.)

Callicore beleses, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 354 (1889)¹.

C. marchalii similis, sed fascia anticarum magis arcuata; posticis plaga magna discali nitente æneo ornatis: subtus linea subapicali gilva angustissima, fascia arcuata juxta eam lunulata costam haud attingente; posticis lineis omnibus nigris, multo latioribus.

Hab. PANAMA, Chiriqui (*mus. Staudinger*¹).

We are indebted to Dr. Staudinger for the loan of an example of this species, which is closely allied to *C. marchalii*, but may at once be distinguished by the conspicuous metallic spot on the discal area of the secondaries. As the true *C. marchalii* is abundant in Chiriqui and extends to Nicaragua, the occurrence of a second species in the same area is somewhat remarkable.

CATAGRAMMA (I. p. 257).

Catagramma lyca (I. p. 258).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*).

Catagramma denina (I. p. 260).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Catagramma titania (I. p. 261).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), San Juan and Chacoj (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Bugaba (*Champion*).

CALLIZONA (I. p. 263).

Callizona acesta (I. p. 264).

Callizona acesta, Staud. Exot. Schmett. p. 125, t. 43⁵.

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*).

GYNÆCIA (I. p. 265).

Gynæcia dirce (I. p. 265).

Gynæcia dirce, Staud. Exot. Schmett. p. 125, t. 43⁶.

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Panzos (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba, David, Volcan de Chiriqui (*Champion*).

AGERONIA (I. p. 267).

Ageronia ferentina (I. p. 268).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Coatepec (*Brooks*), Cuesta de Misantla (*Trujillo*), Teapa (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).

Ageronia glauconome (I. p. 268).

To the localities given, add:—MEXICO, Dos Arroyos in Guerrero (*H. H. Smith*), Coatepec (*Brooks*); NICARAGUA, Matagalpa (*Richardson*).

Ageronia atlantis (I. p. 269).

Ageronia lelaps, G. & S., anteà, i. p. 270².

To the localities given, add:—MEXICO, Guadalajara (*Goldsmith*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

We now have both sexes of *A. lelaps* from Mexico, as well as a female from the Pacific slope of Guatemala, and find that it cannot be separated from *A. atlantis*.

PERIDROMIA (I. p. 270).

Peridromia arethusa (I. p. 270).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*); GUATEMALA, San Juan, Chacoj and Panzos in Vera Paz (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA, Bugaba (*Champion*).

Peridromia amphinome (I. p. 271).

Ageronia amphinome, Staud. Exot. Schmett. p. 128, t. 44⁶.

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Rio Papagaio, Atoyac (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa, (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Peridromia guatemalena (I. p. 273).

To the localities given, add:—MEXICO, Tetamoa (*Buchan-Hepburn*), La Venta in Guerrero, Teapa (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

DIDONIS (I. p. 275).

Didonis aganisa (I. p. 276).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Acaguizotla, Atoyac (*H. H. Smith*), Cuesta de Misantla, San Lorenzo (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*), Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Didonis biblis (I. p. 277).

Didonis biblis, Staud. Exot. Schmett. p. 128, t. 44⁶.

To the localities given, add:—PANAMA⁶, Peña Blanca (*Champion*), Panama city (*Buchan-Hepburn*).

CYSTINEURA (I. p. 277).

Cystineura amymone (I. p. 278).

To the localities given, add:—NORTH AMERICA, Texas.—MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Tampico, Sierra Madre de Tepic (*Richardson*), Guerrero, Atoyac (*H. H. Smith*), Jalapa (*F. D. G.*), Coatepec (*Brooks*); NICARAGUA, Matagalpa (*Richardson*).

We now have a specimen from Jalapa with a distinct fulvous streak at the middle of the outer margin of the primaries, as in the two Texan examples in our collection sent us by Mr. Strecker under the name of *C. dorcas*.

TIMETES (I. p. 282).

Dr. Skinner [Syn. Cat. N. Am. Rhopalocera (1898)] has recorded three of our species from the Southern United States; these are, *T. peleus*, Sulz. (= *petreus*, Cram.), from Florida, and *T. coresia*, Godt., and *T. chiron*, Fabr., from Texas.

Timetes harmonia (I. p. 286).

To the localities given, add:—MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

Sent us in numbers by Mr. Smith.

Timetes berania (I. p. 286).

Megalura berania, Staud. Exot. Schmett. p. 135, t. 45⁴.

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Timetes merops (I. p. 288).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).

Timetes chiron (I. p. 288).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Campala (*Forrer*), Pinal, Puebla (*Elwes*), Tierra Colorada in Guerrero (*H. H. Smith*).

Timetes coresia (I. p. 289).

Megalura coresia, Staud. Exot. Schmett. p. 134, t. 45⁴.

To the localities given, add:—MEXICO, Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Purula (*Champion*).

Timetes iole (I. p. 289).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).

PYRRHOGYRA (I. p. 291).

Pyrrhogyra hypsenor (I. p. 292).

To the localities given, add:—MEXICO, San Blas (*Richardson*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Panzos (*Conradt*); HONDURAS, San Pedro Sula (*Wittkugel*).

Figured by us under the name of *P. tipha* (Tab. XXVII. figg. 3, 4).

ADELPHA (I. p. 294).

Adelpha leuceria (I. p. 300).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*); PANAMA, Chiriqui (*Trötsch*).

We have now received four specimens of this species from the Atlantic slope of Mexico.

Adelpha fessonia (I. p. 301).

To the localities given, add:—MEXICO, Sierra Madre de Tepic (*Richardson*), Jalapa (*F. D. G.*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

Adelpha oberthüri (I. p. 302).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

15 (A). **Adelpha creton**, sp. n. (Tab. CIX. figg. 1, 2, ♀.)

♀. *A. dioclei* similis sed major, anticis macula elongata subapicali fulva latiore introrsum rectiore; posticis margine externo magis dentato et caudato, fascia alba angulum analem versus angustiore: subtus fascia communi alba, præsertim in posticis, latiore.

Hab. MEXICO, Jalapa (*coll. Schaus*).

Mr. Schaus has lent us a single female of this interesting insect, which appears to be a northern form of *A. diocles*, known from a single male only from Panama, but differing as described above; it can, however, hardly belong to that species, as we know of no such sexual differences in any of the allied forms.

Adelpha pithys (I. p. 305).

To the localities given, add:—GUATEMALA, Solola (*Richardson*).

Adelpha basilea (I. p. 306).

To the localities given, add:—MEXICO, La Venta and Rincon in Guerrero (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*).

Adelpha iphicla (I. p. 306).

Adelpha iphicla, Staud. Exot. Schmett. p. 142, t. 49⁷.

To the localities given, add:—MEXICO, Sierra Madre de Tepic (*Richardson*), Acaguitzotla, Dos Arroyos, Atoyac (*H. H. Smith*), Cuesta de Misantla (*Trujillo*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Adelpha basiloides (I. p. 307).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Jalapa (*F. D. G.*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

Adelpha celerio (I. p. 308).

To the localities given, add:—MEXICO, Rincon in Guerrero (*H. H. Smith*), Cuesta de Misantla (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*).

Adelpha bredowi (I. p. 310).

Limenitis bredowi, Edw. Butt. N. Am. i., *Limenitis*, t. 4³.

Heterochroa californica, Butl. P. Z. S. 1865, p. 485⁴.

To the localities given, add:—NORTH AMERICA, California^{3 4}.—MEXICO, Durango city (*Becker*), Puebla (*Elwes*), Amecameca (*F. D. G.*), Omilteme, Xucumanatlan (*H. H. Smith*).

LIMENITIS (I. p. 311).

Limenitis arizonensis (I. p. 311).

To the localities given, add:—MEXICO, Durango city (*Becker*).

Mr. Becker has sent us two females of this insect from Durango, thus extending our knowledge of its range southwards.

CHLORIPPE (I. p. 312).

Chlorippe callianira (I. p. 314).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

Chlorippe pavonii (I. p. 315).

Apatura pavonii, Staud. Exot. Schmett. p. 158, t. 55⁵.

To the localities given, add:—MEXICO, Tampico (*Richardson*), Jalisco (*Schumann*), Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*), Panzos (*Conradt*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Chlorippe laure (I. p. 315).

To the localities given, add:—MEXICO, Campala (*Forrer*), Venta de Zopilote and La Venta in Guerrero, Atoyac (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, San Feliz (*Champion*).

Chlorippe cherubina (I. p. 318).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

DOXOCOPA (I. p. 318).

Doxocopa argus (I. p. 319).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

We possess four males and one female of this species from Nicaragua, these being much darker than our Mexican specimens, the female, too, having the pale oblique band on the primaries almost obsolete.

2. Doxocopa celtis.

Apatura celtis, Boisd. & Lec. Lép. Amér. Sept. p. 210, t. 57¹; Edw. Butt. N. Am. ii., *Apatura*, t. i. ff. 1–5².

Apatura leilia, Edw. Trans. Am. Ent. Soc. v. p. 103³; Butt. N. Am. ii., *Apatura*, t. i. ff. 6–7⁴.

BIOL. CENTR.-AMER., Rhopal., Vol. II., September 1901.

Alis sordide fulvis, anticis dimidio apicali fuscescente, maculis duabus elongatis cellulam transeunte nigrescentibus, interiore interdum in duas partes divisa, maculis octo exterioribus, tribus ultra cellulam, aliis tribus infra eas, una apicali, una quoque infra eam, albidis, ocellis duobus nigris inter venas (interdum albo pupillatis) marginem externum versus, lineis submarginalibus duabus subparallelis nigrescentibus; posticis ocellis nigris sex, plerumque cæruleo pupillatis in serie irregulari submarginali, ultra eas lineis duabus, interiore valde undulata: subtus anticis fusco-griseis, infra venam medianam interdum rubescentioribus, maculis albis et ocellis duobus ut supra, ocelloque tertio apicem versus; posticis grisescentibus, lineis obscuris variis transeuntibus, ocellis ut supra sed majoribus et omnibus cæruleo pupillatis flavoque circumcinctis, lineis submarginalibus ut in pagina superiore.

♀ mari similis.

Hab. NORTH AMERICA, New England to Texas², Arizona^{3 4}.—MEXICO, Northern Sonora (*Morrison*), Durango city (*Becker*).

Our collection contains twelve specimens of this species from within our limits (nine males from Sonora and two males and one female from Durango), as well as others from the United States. The Sonoran examples belong to the form *D. leilia* and the Durango ones to *D. celtis*. The differences between these two insects as given by Mr. Edwards seem to be of little importance when a long series is examined, as intermediates occur. Named examples of both sexes of *D. celtis* sent us by Mr. Strecker confirm us in this opinion. We notice, however, that the Sonoran and Arizona insects are redder on the upperside and on the underside of the primaries below the median nervure.

PREPONA (I. p. 320).

Prepona demophon (I. p. 320).

To the localities given, add:—MEXICO, Campala (*Forrer*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

The single specimen from Mexico is in very bad condition, but no doubt belongs here.

3 (A). **Prepona ælia**. (Tab. CIX. fig. 3, ♂.)

Prepona ælia, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 355 (♂) (1889)¹.

Alis nigricantibus, fascia communi mediana nitente cærulea; maculis duabus parvis ad angulum analem aliisque obsoletis submarginalibus cyaneis: subtus sericeo-cinereo-brunneis fere unicoloribus, dimidio basali lineis paucis nigris irregulariter transfasciatis; posticis maculis ad angulum analem cyaneis et ad marginem externum sicut in pagina superiore.

Hab. MEXICO, Coatepec (*Brooks*¹).

We possess a single male specimen of this species, given us by Mr. Brooks of Coatepec and captured in that neighbourhood, and Mr. Schaus informs us that he has a female of it, also from Mexico. It resembles in some respects *P. synchrona* of Staudinger, and has a similar distribution of the blue colour on the upper surface

of the wings, but the secondaries have no obsolete submarginal fulvous spots as in that species. Beneath, the wings are almost uniformly coloured, instead of being divided into two tints by a sharply defined straight transverse line.

Prepona amphitoe (I. p. 322).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Prepona gnorima (I. p. 323).

Prepona gnorima, Staud. Exot. Schmett. p. 160, t. 56.

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

7. Prepona brooksiana. (Tab. CIX. figg. 4, 5, ♀.)

Prepona brooksiana, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 355 (♀) (1889)¹.

♀. Alis fusco-nigris, fascia lata communi per medium alarum (latiore in posticis) nitente cyanea; maculis magnis fulvis in serie submarginali positis, iis in posticis nigro ocellatis: subtus dimidio basali, extrorsum irregulariter terminato, argenteo-cano, lineis transversis undulatis nigris, dimidio distali brunneo-cinereo; anticis lineis transversis tribus nigris, una brevi ad cellulæ finem, secunda bene angulata ultra eam per alam extendente, tertia exteriori et margine externo subparalleli, punctis tribus angulum analem versus nigris; posticis argenteo irroratis, ocellis duobus nigris fulvo circumcinctis cyaneo et albo pupillatis, uno ad apicem, altero ad angulum analem, fascia submarginali communi fere obsoleta pallidiori in posticis intra oculos, punctis tribus indistinctis cyaneis notatis.

Hab. MEXICO, Coatepec (*Brooks*¹).

A single female of this fine species was captured by Mr. Brooks at Coatepec, and Mr. Schaus informs us that he has a worn specimen of it also from Mexico. It is not very nearly allied to any other *Prepona* known to us, though on the upperside the markings somewhat remind us of those of *P. deiphile* of South America. The male is at present unknown.

AGANISTHOS (I. p. 324).

Aganisthos orion (I. p. 324).

Aganisthos odius, Staud. Exot. Schmett. p. 160, t. 56.

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

COEA (I. p. 325).

Coea cadmus (I. p. 326).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*).

AGRIAS (I. p. 328).

Agrias ædon (I. p. 328).

Agrias ædon, Staud. Exot. Schmett. p. 164⁵.

To the localities given, add:—GUATEMALA, Vera Paz (*Rodriguez*).

Señor Don Juan Rodriguez, in a letter to Salvin of 11th May, 1897, states that he possesses a male of this species captured in Vera Paz.

SMYRNA (I. p. 329).

Smyrna blomfieldia (I. p. 329).

To the localities given, add:—MEXICO, Campala (*Forrer*), Cuesta de Misantra (*Trujillo*), Atoyac (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

SIDERONE (I. p. 331).

Siderone ellops (I. p. 332).

To the localities given, add:—MEXICO, Rio Papagaio and Dos Arroyos in Guerrero (*H. H. Smith*); GUATEMALA, Zapote (*Champion*); NICARAGUA, Matagalpa (*Richardson*).

Siderone ide (I. p. 333). (Tab. XXXVII. figg. 8, 9, ♂, var. *thebais*; 10, ♀.)

To the localities given, add:—MEXICO, Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

ANÆA (I. p. 335).

Dr. Skinner [Syn. Cat. N. Am. Rhopalocera (1898)] enumerates three species of this genus from the United States—*A. andria*, Scudd. (= *ops*, Druce), *A. portia* (Fabr.), and *A. morrisoni*, Edw. (= *aidea*, Guér.), giving "Mexico" as an additional habitat of *A. morrisoni*.

Anæa titan (I. p. 337). (Tab. CIX. figg. 6, 7, ♀.)

♀ mari similis, sed alis rufo-brunneis, anticis fascia ochracea irregulari ultra cellulam (latiore ad marginem internum) fere ad angulum analem extendente, margine externo angulum analem versus maculis quatuor coloris ejusdem, apice ipso rufo-brunneo (nec nigro); posticis vix caudatis, dimidio externo læte flavis, rubro anguste limbatis, apicem versus maculis tribus notatis: subtus dimidiis externis flavescentioribus; anticis maculis duabus discalibus flavis.

To the localities given, add:—PANAMA, Volcan de Chiriqui (*Trötsch, ex Staudinger*).

We are now able to describe and figure the female of this species from an example from Chiriqui in Dr. Staudinger's collection; he has also sent us a male from that locality.

Anæa aidea (I. p. 338).

Paphia morrisoni, Edw. Papilio, iii. p. 8³.

To the localities given, add:—NORTH AMERICA, Arizona³.—MEXICO, Alamos in Chihuahua (*Buchan-Hepburn*), Ciudad Victoria in Tamaulipas (*Richardson*), Venta de Zopilote in Guerrero (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*).

Anæa ryphea (I. p. 339).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Anæa morta (I. p. 340).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Anæa œnomais (I. p. 341).

To the localities given, add:—MEXICO (*coll. Schaus*), Tampico (*Richardson*).

Mr. Richardson has sent us a single female from Tampico which seems to belong to this species.

13 (A). **Anæa schausiana**. (Tab. CIX. figg. 8, ♂ ; 9, 10, ♀.)

Anæa schausiana, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) xiv. p. 98 (1894)¹.

♂. Alis purpureo-nigris, anticis triente basali et macula ad apicem purpureo-cæruleis: subtus læte brunneis, griseo et argenteo irroratis, anticis fascia indistincta (latiore angulum analem versus) a margine interno ad apicem extendente, punctis minutis submarginalibus sex albidis; posticis fascia lata margini externo subparalleli grisescente, punctis minutis submarginalibus sex albis, horum duobus nigro notatis.

♀ mari similis, sed alis ambabus ad basin late et maculis duabus subapicalibus violaceo-cæruleis: subtus multo pallidioribus ochraceo-brunneo irroratis, cauda magis producta et spatulata.

Hab. MEXICO, Coatepec (*Schaus*¹).

We are indebted to Mr. Schaus for a pair of this fine species. It is perhaps most nearly allied to *A. beatrix*, amongst the Central-American *Anææ*.

Anæa pithyusa (I. p. 345).

To the localities given, add:—MEXICO, Coatepec (*Brooks*), Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

We have received many males of this species from the Volcan de Santa Maria, some of which have the spots on the primaries either very small or absent. Mr. Brooks has sent us specimens of both sexes from Coatepec.

Anæa xenocles (I. p. 346).

Dr. Staudinger has sent us a female *Anæa* from Chiriqui which probably belongs to this species. It has the base of the wings of a paler blue tint and the primaries have two subapical white spots only.

Anæa herbacea (I. p. 347).

To the locality given, add:—MEXICO, Orizaba (*coll. Schaus*).

We have seen a male of this species from Mexico in Mr. Schaus's collection agreeing with the Costa Rican types.

Anæa proserpina (I. p. 348). (Tab. XXXIII. figg. 7, 8, ♂; 9, 10, ♀.)

The reference to our figures of this species was omitted on p. 348.

Anæa laura (I. p. 348).

Anæa laura, Honrath, Berl. ent. Zeitschr. 1889, p. 167 (♀) ⁴.

We now have a male of this species, given us by Wheeler, captured in the interior of Colombia.

23 (A). **Anæa elara**. (Tab. CIX. figg. 11, 12, ♂.)

Anæa elara, Godm. & Salv. Trans. Ent. Soc. 1897, p. 244 ¹.

Alis ecaudatis, cyaneo-nigris; anticis fascia subapicali arcuata venis quadripartita viridi-cyanea; posticis unicoloribus ad marginem externum squamis viridi-cyaneis atomatis: subtus læte castaneis albo irroratis, marginibus externis immaculatis, posticis macula parva ad medium marginis costalis.

♀ major, alis ad basin viridi-cyaneo lavatis, anticis fascia subapicali latiore et fere ad angulum analem extensa, posticis caudatis.

Hab. COSTA RICA (*mus. Staudinger* ¹).

This species is allied to *A. proserpina*, Salvin, and *A. ambrosia*, Druce, having the underside of the former and the upperside somewhat like that of the latter.

Dr. Staudinger has sent us a male and female—the former in good condition, but the latter has lost the tails of the hind wings.

Anæa forreri (I. p. 350).

To the localities given, add:—MEXICO, Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

We now possess both sexes of this species from Coatepec, the female being very like the type (male) from Presidio, except that it has a spatulate tail to the secondaries; the male from Coatepec closely resembles the second example of that sex we have already mentioned. The eight males sent us by Mr. Richardson from the Pacific slope of Guatemala agree with these latter, except in having the base of the wings of a greenish hue.

Anæa orthesia (I. p. 351). (Tab. XXXVI. figg. 5, 6, ♂; 7, 8, ♀ *.)

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

Mr. Smith has sent us a single female of this species.

* By mistake, *antèa*, i. p. 351, the figures of *A. onophis*, ♀ (Tab. XXXIV. figg. 11, 12), were quoted for *A. orthesia*.

Anæa electra (I. p. 352).

Anæa electra, Staud. Exot. Schmett. p. 178, t. 61⁵.

To the localities given, add:—MEXICO, Jalapa (*F. D. G.*), Orizaba (*Elwes*); GUATEMALA, Zapote (*Champion*).

PROTOGONIUS (I. p. 357).

Protoponius cecrops (I. p. 357).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).

EURYGONA (I. p. 362).

1 (A). **Eurygona cheles**. (Tab. CX. figg. 1, 2, ♀.)

Eurygona cheles, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 356 (♀) (1889)¹.

♀. *E. aurantiacæ* similis, sed anticis area circa ramum medianum primum et cellula fusco lavatis, posticarum margine externo rotundato (haud angulato): subtus pallidioribus, linea transversa communi in anticis fere recta, in posticis magis sinuata.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

The single female from which our original description was taken still remains the only specimen known to us of this species.

Eurygona argentea (I. p. 365).

To the localities given, add:—PANAMA, Chiriqui (*mus. Staudinger*).

3 (A). **Eurygona corduena**.

Eurygona corduena, Hew. Boliv. Butt. p. 13¹; Ex. Butt., *Erycinidæ*, ff. 4, 5, 6 (♂ ♀)².

Alis fusco-nigris, anticis ad basin, posticis ad angulum analem læte nitide cyaneis, his ciliis ad medium marginis externi hic illuc albis: subtus argenteo-albis; anticis margine externo et fasciis tribus transversis ad costam divergentibus fuscis, una per cellulam, duabus discalibus, fasciis his in posticis continuatis, curvatis, margini externo plus minusve parallelis, in margine interno terminatis, duabus externis plaga magna rufo-aurantia interruptis, ocello nigro inter venam medianam et ramo suo secundo ornata.

♀. Alis fuscis, ad margines externos saturatioribus; anticis plaga magna ovali alba ornatis.

Hab. PANAMA, Volcan de Chiriqui (*Trötsch*).—PERU; BOLIVIA^{1 2}.

We are unable to separate a male *Eurygona* submitted to us by Dr. Staudinger from *E. corduena*, described by Hewitson from specimens obtained by Buckley in Bolivia. This species is evidently allied to *E. argentea*.

Eurygona eubule (I. p. 366).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

Mr. Smith has sent us specimens of both sexes of this species from Atoyac. The two females agree with the one figured by us.

Eurygona sergia (I. p. 367).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

Eurygona hieronymi (I. p. 368).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac (*H. H. Smith*).

We now have five males of this species from Mexico.

Eurygona inconspicua (I. p. 368).

♂. Alis rufo-brunneis, costa et margine externo anticarum late obscurioribus: subtus sicut in femina.

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

We are enabled to describe the male of this species from two specimens taken at Atoyac and one from Chiriqui captured by Trötsch. The Panama example has the bands on the underside of the wings broader than in the Mexican insects.

Eurygona pusilla (I. p. 369).

♂. Alis fusco nigris, anticis plaga clavata infra cellulam, posticis margine interno late (plica excepta), aurantiis: subtus sicut in femina.

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*), Atoyac (*H. H. Smith*).

We omitted to describe the male of this species in the earlier part of this work, not having specimens of that sex before us.

Eurygona cataleuca (I. p. 370).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*).

EURYBIA (I. p. 374).

Eurybia patrona (I. p. 375).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Eurybia lycisca (I. p. 377).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*); HONDURAS, San Pedro Sula (*Wittkugel*).

Eurybia halimede (I. p. 378).

To the localities given, add:—MEXICO, Rio Papagaio in Guerrero (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).

MESOSEMIA (I. p. 378).

Mesosemia methion (I. p. 380).

To the localities given, add:—MEXICO, Acaguizotla in Guerrero, Atoyac, Teapa (*H. H. Smith*), Jalapa (*coll. Schaus*).

We now have a long series of this species, including both sexes, from Mexico.

Mesosemia nivalis (I. p. 386).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*).

CREMNA (I. p. 387).

Cremna umbra (I. p. 389).

To the localities given, add:—MEXICO, Atoyac, Jalapa (*Schaus*), Teapa (*H. H. Smith*).

DIORHINA (I. p. 390).

Diorhina butes (I. p. 391).

To the localities given, add:—MEXICO, Rincon in Guerrero (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Atoyac (*Schumann, H. H. Smith*), Jalapa (*coll. Schaus*).

ERYCINA (I. p. 392).

Erycina jurgensensi (I. p. 393).

To the localities given, add:—MEXICO, Cordova (*coll. Schaus*).

LEPRICORNIS (I. p. 405).

Lepricornis melanchroia (I. p. 405).

To the locality given, add:—MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

We have now nine examples of this species, including both sexes, from Atoyac.

1 (A). **Lepricornis unicolor**.

Esthemopsis (?) *unicolor*, Godm. & Salv. anteà, i. p. 487, t. 47. f. 6¹.

Having a series of *L. melanchroia*, Feld., before us, we find that the insect we doubtfully referred to the genus *Esthemopsis* (anteà, i. p. 487) belongs properly to *Lepricornis*, and is indeed a close ally of Felder's species. The type of *E. unicolor* proves to be a male, not a female as we had supposed.

LIMNAS (I. p. 408).

Limnas pixe (I. p. 409).

To the localities given, add:—MEXICO, Rincon, La Venta and Rio Papagaio in Guerrero, Atoyac, Teapa (*H. H. Smith*), Omealca, Cuesta de Misantla and San Lorenzo (*Trujillo*), Jalapa (*coll. Schaus*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

1 (A). **Limnas gynæceas**. (Tab. CX. fig. 3, ♀.)

Limnas gynæceas, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 356 (1889)¹.

♀. Alis nigris; anticis apice flavidis, macula ad basin coccinea; posticis, præter maculam basalem coccineam, immaculatis: subtus ut supra, abdomine maculis quatuor coccineis utrinque notato.

Hab. MEXICO, Cuesta de Misantla (*M. Trujillo*¹).

We have a single female of this insect, which may prove to be only an extreme form of *L. pixe* with the scarlet marginal spots of the secondaries absent. We have since received specimens of *L. pixe* from the same locality.

Limnas cephise (I. p. 411).

To the localities given, add:—MEXICO, La Venta and Tierra Colorada in Guerrero (*H. H. Smith*), Jalapa (*coll. Schaus*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

Limnas acroleuca (I. p. 412).

To the localities given, add:—MEXICO, Milpas in Durango, Ventanas (*Forrer*), Venta de Zopilote in Guerrero (*H. H. Smith*), Jalisco (*Schumann*).

SYMMACHIA (I. p. 415).

Symmachia emesia (I. p. 416).

To the locality given, add:—MEXICO, Mazatlan (*ex H. Edwards*).

Symmachia yucatanensis (I. p. 416).

To the localities given, add:—MEXICO, Venta de Zopilote in Guerrero (*H. H. Smith*), Jalapa (*coll. Schaus*).

We now question whether this is a valid species, as a specimen of *S. emesia* has been sent us from Mexico.

Symmachia accusatrix (I. p. 416).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*), Jalapa (*Trujillo*).

Specimens of both sexes of this species have now been sent us from Eastern Mexico; we had not hitherto seen females from Central America.

Symmachia championi (I. p. 417).

To the locality given, add:—MEXICO, Jalapa (*coll. Schaus*).

Symmachia rubina (I. p. 419).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

MESENE (I. p. 420).

Mesene croceella (I. p. 423).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus*).

Mesene margaretta (I. p. 423).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Jalapa (*coll. Schaus*).

CHARIS (I. p. 427).

Charis zama (I. p. 428).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

Charis velutina (I. p. 428).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*), Omealca, San Lorenzo (*Trujillo*), Jalapa (*coll. Schaus*).

Sent us in abundance from South-east Mexico. The Teapa females differ from those from Atoyac in having a common dark discal angulated band crossing the wings.

Charis laverna (I. p. 430).

To the localities given, add:—MEXICO, Durango city (*Becker*), Chilpancingo, Rio Papagaio, Venta de Zopilote (*H. H. Smith*), Jalapa (*coll. Schaus*).

Charis holosticta (I. p. 431).

To the localities given, add:—MEXICO, Jalapa (*coll. Schaus*).

Charis sulphurea (I. p. 432). (Tab. CX. fig. 4, ♀.)

To the locality given, add:—MEXICO, Teapa (*H. H. Smith*), Jalapa (*coll. Schaus*).

CALYDNA (I. p. 433).

Calydna venusta (I. p. 433).

To the localities given, add:—MEXICO, Rincon in Guerrero (*H. H. Smith*).

Calydna hegias (I. p. 434).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Chilpancingo (*H. H. Smith*), Jalapa (*coll. Schaus*).

SAROTA (I. p. 434).

Sarota chrysus (I. p. 435).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*), Jalapa (*coll. Schaus*).

Sarota myrtea (I. p. 437).

To the localities given, add:—MEXICO, Cordova (*Elwes*), Jalapa (*coll. Schaus*).

ANTEROS (I. p. 437).

Anteros carausius (I. p. 440).

To the localities given, add:—MEXICO, Jalisco (*Schumann*), Rincon in Guerrero, Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus*); NICARAGUA, Matagalpa (*Richardson*).

EMESIS (I. p. 441).

Emesis mandana (I. p. 443).

To the localities given, add :—MEXICO, Tierra Colorada, Rincon, Venta de Zopilote, Atoyac, Teapa (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Jalapa (*coll. Schaus*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

Emesis tenedia (I. p. 443).

Emesis lupina, Godm. & Salv. anteà, i. p. 444, t. xlii. ff. 13–15.

To the localities given, add :—MEXICO, Tampico (*Richardson*), La Venta, Dos Arroyos, Acapulco, Acaguizotla, Amula, Xucumanatlan, Atoyac, Teapa (*H. H. Smith*), Misantla, Jalapa, Vera Cruz (*F. D. G.*), Orizaba (*Elwes*); GUATEMALA, Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

With our large amount of additional material *E. lupina* proves to be nothing more than a pale form of *E. tenedia*.

4 (A). **Emesis brimo**. (Tab. CX. figg. 5, 6, ♂.)

Emesis brimo, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 357 (♂) (1889)¹.

Alis brunneis, area discali vix sericeo nitente et lineolis nigris transversis fere ut in *E. tenedia* (*lupina*); anticis macula quadrata ad cellulæ finem, altera costali ultra eam, margine externo late maculisque variis ad basin, testaceis, maculis submarginalibus sex nigris, ea ad angulum analem duplici; posticis testaceo variegatis et maculis submarginalibus nigris notatis: subtus testaceis, maculis et lineolis nigris undique notatis.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

Dr. Staudinger has lent us a single male of this species which belongs to the same group as *E. tenedia*, but the markings are all much more clearly defined.

Emesis vulpina (I. p. 444).

To the locality given, add :—MEXICO, La Venta and Rio Papagaio in Guerrero (*H. H. Smith*), Jalisco (*Schumann*), San Blas, Tehuantepec (*Richardson*).

Our additional material includes both sexes, which are very much alike.

5 (A). **Emesis pœas**, sp. n. (Tab. CX. figg. 7, 8, ♂; 9, 10, ♀.)

Alis rufo-brunneis, lineolis nigris valde irregularibus transfasciatis, introrsum plumbeo limbatis, punctis nigris in serie submarginali: subtus læte ferrugineis, maculis variis elongatis nigris; ciliis fuscis, albo maculatis. ♀ mari similis, sed alis multo pallidioribus.

Hab. MEXICO, La Venta, Chilpancingo, and Acapulco in Guerrero (*H. H. Smith*).

Described from two males and three females from Western Mexico. Allied to *E. vulpina* of the same region, but distinguishable by its darker coloration and the white-spotted fringe to the wings.

Emesis tegula (I. p. 444).

To the localities given, add:—MEXICO, Dos Arroyos in Guerrero, Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus*), Coatepec (*Brooks*); NICARAGUA, Matagalpa (*Richardson*).

Emesis zela (I. p. 444).

To the localities given, add:—MEXICO, Omilteme, Xucumanatlan (*H. H. Smith*), Pinal, Puebla (*Elwes*), Amecameca (*F. D. G.*).

Emesis cypria (I. p. 445).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

E. paphia will probably prove to be inseparable from *E. cypria*, as we have received a male of the latter from the precise locality whence the type of the first-mentioned insect was obtained.

13 (A). **Emesis fastidiosa.**

Eumesis fastidiosa, Mén. Cat. Mus. Petr. Lep. i. p. 90, t. 3. f. 5¹.

♀. *E. aurimnce* similis, sed anticis ad apices distincte falcatis.

Hab. HONDURAS, San Pedro Sula (*Wittkugel*).—BOLIVIA; BRAZIL¹.

We have a female of an *Emesis* from the above locality agreeing exactly with others of the same sex of *E. fastidiosa* from Bolivia and Brazil, and, in the absence of the male, we are compelled to refer it to that species. It is possible, however, that it may prove to belong to *E. saturata*, described by us from a single male from Mexico.

Emesis liodes (I. p. 447).

To the locality given, add:—MEXICO, Atoyac (*Schumann*), Jalapa (*coll. Schaus*), San Lorenzo near Cordova (*Trujillo*), Frontera in Tabasco (*H. H. Smith*).

CARIA (I. p. 447).

Caria ino (I. p. 449).

To the localities given, add:—MEXICO, Venta de Zopilote in Guerrero (*H. H. Smith*).

3 (A). **Caria melicerta.**

Caria melicerta, Schaus, Ent. Amer. vi. p. 18 (♂ ♀) (1890)¹.

Præcedenti similis, sed anticis ad cellulæ finem squamis viridibus nitentibus ornatis.

Hab. MEXICO, Paso de San Juan¹ (*Mus. Brit., ex Schaus*), Atoyac (*Schumann*).

This species, of which we have a single male specimen from Atoyac, appears to be an eastern form of *C. ino*, the latter being confined to the Pacific slope.

Caria rhacotis (I. p. 449).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).

BÆOTIS (I. p. 452).

Bæotis zonata (I. p. 453).

To the localities given, add:—MEXICO, Rincon, Atoyac (*H. H. Smith*), Jalapa (*coll. Schaus*).

2. **Bæotis nesæa**. (Tab. CX. figg. 11, 12, ♂.)

Bæotis nesæa, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 356 (♂) (1889)¹.

Alis pallide flavis, anticis dimidio distali, costa et linea obliqua ad basin, nigricantibus, limbo marginali maculis duabus flavis, una subapicali, secunda ad angulum analem, macula rubra ad costæ medium; posticis margine externo late nigricante (linea flava et altera exterior plumbea includente) cum linea basali margini interno subparalleli conjuncta: subtus ut supra, sed maculis et lineis submarginalibus majoribus, lineis basalibus subobsoletis.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

Dr. Staudinger has submitted to us the single male specimen here figured and described. It has no near allies known to us, but somewhat resembles *B. felix*, Hew. The red spot, however, on the costa of the primaries is quite characteristic.

METACHARIS (I. p. 453).

2. **Metacharis (?) melucina**.

Metacharis (?) melucina, Staud. Exot. Schmett. p. 256, t. 91¹ (*erythromelas* ♂, nec ♀).

Alis nigris, anticis plaga magna infra venam medianam, ultra cellulam et ad marginem internum extendente, cum maculis duabus in cellula confluentibus, aurantiis; posticis margine costali albo, litura a basi (extrorsum latiore) haud ad marginem externum extendente aurantia, anticis et posticis linea angusta nitente plumbea submarginali: subtus anticis fuscis, area infra venam medianam pallide ochracea, costa et maculis duabus (una costali ultra cellulam, secunda majore exterior) maculisque quibusdam angulum analem versus, albis; posticis albis, nigro maculatis.

Hab. PANAMA, Chiriqui¹ (*Ribbe, ex Staudinger*). — COLOMBIA, San Pablo, Rio San Juan¹.

Dr. Staudinger has sent us a male of this species from Chiriqui, and two others of the same sex from the Rio San Juan, under the above name, an example from the latter locality having been figured by him as *M. erythromelas* (Sepp). It is a close ally of that insect, which inhabits the Amazon Valley, but differs in having the orange patch on both wings more extended. The Chiriqui specimen, from which the above description is taken, differs again from the southern insects in having two orange spots in the cell confluent with the discal patch. These species have been placed by Dr. Staudinger doubtfully in *Metacharis*, from which they will probably have to be removed. The two insects have very much the facies of *Lemonias emylius* (Cram.).

LASAIA (I. p. 454).

Lasaia meris (I. p. 455).

Lasaia meris, var. *sula*, Staud. Exot. Schmett. p. 257, t. 91⁴.

To the localities given, add :—MEXICO, Rincon, Tierra Colorada, Rio Papagaio and Chilpancingo in Guerrero, Atoyac, Teapa (*H. H. Smith*), Jalapa (*coll. Schaus*), Coatepec (*Brooks*) ; GUATEMALA, Panzos (*Conradt*), Volcan de Santa Maria (*Richardson*) ; HONDURAS, San Pedro Sula⁴ (*Wittkugel*) ; NICARAGUA, Matagalpa (*Richardson*).

We received from Dr. Staudinger two specimens of his var. *sula*, and we have many others like them from various localities.

2. Lasaia sessilis.

Lasaia sessilis, Schaus, Ent. Amer. vi. p. 19 (♂) (1890)¹.

L. meri similis, sed alis obscurioribus, subtus quoque minus variegatis.

♀ ignota.

Hab. MEXICO, Coatepec¹ (*Mus. Brit., ex Schaus*), Jalapa (*M. Trujillo*).

We are inclined to regard this insect as nothing more than a dark form of *L. meris*, with which we had placed it. The specimen recorded from the Rio Chisoy, Guatemala (*anteà*, i. p. 455), belongs here. The typical form of *L. meris* also occurs at Coatepee and Jalapa.

THAROPS (I. p. 456).

4. Tharops trötschi, sp. n. (Tab. CX. figg. 13, 14, ♀.)

♀. Alis rufo-brunneis, maculis nigris transfasciatis, maculis parvis in costa ultra cellulam albis, infra eas cæruleo-griseo notatis, punctis in serie submarginali nigris cæruleo-griseo circumcinctis ; posticis ad angulum analem late albis sparsim nigro punctatis, ultra cellulam cæruleo-griseo notatis : subtus maculis ut supra, anticis pallide fuscis albo notatis ; posticis albis apicem versus fuscis, ad apicem ipsum et ad angulum analem maculis nigris majoribus munitis.

♂ nobis ignotus.

Hab. PANAMA, Chiriqui (*Trötsch, ex Staudinger*).—COLOMBIA, San Pablo, Rio San Juan.

Dr. Staudinger has provided us with four specimens of this species, all females ; three of them are from Rio San Juan and one from Chiriqui, the latter being labelled *Echenais trötschi*, of which we cannot find any published description. It is a close ally of *T. (Lemonias) felsina*, Hew., from Brazil, of which, too, the female alone is known, and the true generic position of both insects therefore is somewhat doubtful.

LEMONIAS (I. p. 457).

Lemonias lilina (I. p. 459).

To the localities given, add:—MEXICO, Atoyac (*Schumann*), Jalapa (*coll. Schaus*).

We are now able to confirm the Mexican habitat of *L. lilina*, about which we expressed some doubts when previously dealing with this species.

2 (A). **Lemonias idmon**. (Tab. CX. figg. 15, 16, ♂; 17, 18, ♀.)

Lemonias idmon, Godm. & Salv. Ann. & Mag. Nat. Hist. (6) iii. p. 357 (♂ ♀) (1889)¹.

Alis ferrugineis ad basin paullo fusciscentioribus et nigro maculatis: subtus canescentibus ad margines externos et anticis ad costam magis fuscis; maculis nigris sicut in pagina superiore, sed maculis singulis albo cinctis; maculis submarginalibus quoque nigris albo cinctis, eis venæ medianæ posticarum utrinque obsoletis.

♀ mari similis, sed alis fusciscentibus ferrugineo vix tinctis.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

From Dr. Staudinger we have a male and female of this species, which is allied to *L. galena*, Bates, but the wings of the male are less ferruginous above, and beneath there is no submarginal rufous band to the secondaries; the submarginal spots also on these wings are more irregular, those on either side of the median vein being obsolete.

3 (A). **Lemonias eudocia**. (Tab. CX. figg. 19, 20.)

Lemonias eudocia, Godm. & Salv. Trans. Ent. Soc. 1897, p. 244¹.

Alis saturate fuscis undique nigro maculatis, maculis singulis saturate ochraceo indistincte limbatis, ciliis fuscis irregulariter albo interruptis: subtus omnino pallidioribus, maculis omnibus nigris albo cinctis.

Hab. MEXICO, Colima (*mus. Staudinger*¹).

A small insect belonging to the section represented in Central America by *L. glauca* and *L. densemaculata*. From the former it differs in having the wings dark fuscous (instead of bluish grey), and from the latter in the more obscure coloration, the black spots being less apparent. The single specimen sent us by Dr. Staudinger is probably, judging from the shape of the wings, a female.

Lemonias pelarge (I. p. 461).

♀. *L. parthaonti*, Dalm. (*ancile*, Hew.), similis, sed anticis plaga aurantia ad angulum analem magna; posticis colore ochraceo magis extenso.

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

Mr. Smith has sent us a female of this species from Eastern Mexico. It is very like the same sex of *L. parthaon* (figured by Hewitson under the name of *L. ancile*), but differs as noted above.

Lemonias zeurippa (I. p. 462). (Tab. CX. figg. 21, 22, ♀.)

♀. *L. lasthenes* feminae similis, sed alis obscurioribus, anticis fascia obliqua angustiore et saturatiore: subtus posticis ad apicem maculis nigris minus obviis.

To the localities given, add:—MEXICO, Dos Arroyos (*H. H. Smith*), Jalapa (*Schaus*).

Lemonias sudias (I. p. 463).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

The insect figured under this name by Staudinger (Exot. Schmett. t. 92) belongs to a different species.

Lemonias irenea (I. p. 463).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

APODEMIA (I. p. 466).

Apodemia hypoglauca (I. p. 468).

To the localities given, add:—MEXICO, Atoyac (*Smith, Schumann*), Jalapa (*Schaus*).

We now have two males and one female of this species from Eastern Mexico. The male is very like the female previously described, and differs from the same sex of *A. walkeri* in having the wings darker and less distinctly spotted on the upper surface.

Apodemia palmeri (I. p. 468).

To the localities given, add:—MEXICO, Durango (*Becker*), Aguas Calientes (*F. D. G.*).

Apodemia walkeri (I. p. 468).

To the locality given, add:—MEXICO, Chilpancingo, Venta de Zopilote, and Savana Grande in Guerrero (*H. H. Smith*), Cuernavaca (*F. D. G.*).

This species was described from a single male specimen; we have since obtained four others agreeing with it, one of them being a female. It is a western form of *A. hypoglauca*.

NYMPHIDIUM (I. p. 470).

Nymphidium mycone (I. p. 470).

To the localities given, add:—MEXICO, Rio Papagaio, Tierra Colorada, La Venta (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).—COLOMBIA.

Nymphidium labdacus (I. p. 471).

To the locality given, add:—MEXICO, Jalapa (*coll. Schaus*).

We have seen a pair of this species in Mr. Schaus's collection, the male being previously unknown to us.

Nymphidium molpe (I. p. 473).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*), San Lorenzo (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*).

Nymphidium onæum (I. p. 474).

We have a mutilated female specimen of a *Nymphidium* from Ruatan Island, which comes very near this species, if it is not identical with it.

Nymphidium sicyon (I. p. 475).

To the locality given, add:—GUATEMALA, San Gerónimo (*Champion*).

Since the publication of the earlier part of this work we have detected a female of this species in our collection.

Nymphidium lycorias (I. p. 477).

To the localities given, add:—MEXICO, Dos Arroyos, Tierra Colorada, and La Venta in Guerrero (*H. H. Smith*), Coatepec (*Brooks*), Jalapa (*coll. Schaus*), Omealca (*Trujillo*); NICARAGUA, Matagalpa (*Richardson*).

PANDEMOS (I. p. 478).

3. Pandemos palæste.

Pandemos palæste, Hew. Ex. Butt., Erycinidæ, t. 1. ff. 7, 8¹.

Alis fuscis, anticis plaga rufa in margine interno ad angulum analem; posticis bitriente terminali griseo venis intersecto, costa omnino fusca, margine interno rufescente: subtus pallide fuscis, fascia communi indistincta fusca ultra cellulas notatis, posticis ad marginem externum punctis obscuris; palpis et corpore subtus sordide albis.

Hab. COSTA RICA (*mus. Staudinger*).—COLOMBIA¹.

The above diagnosis has been taken from a single specimen, apparently a female, lent us by Dr. Staudinger. This we identify with Hewitson's *Pandemos palæste*, which was described and figured from a male in E. Birchall's collection. The Costa-Rican insect, however, has a red spot near the anal angle of the primaries, and a rufous inner border and a wider grey end to the secondaries. These differences, in the absence of more examples for comparison, we take to be sexual.

THEOPE (I. p. 480).

Theope hypoxanthe (I. p. 482).

Theope isia, anteà, i. p. 482.

The type of *T. isia*, from Guatemala, proves to be a worn specimen of *T. hypoxanthe*, Bates, which latter is scarcely separable from *T. pedias*, H.-S. Mr. Smith has sent us a male of this insect in good condition from Atoyac in Mexico, whence we have already recorded *T. isia*.

Theope virgilius (I. p. 484).

To the localities given, add:—MEXICO, Jalapa (*F. D. G.*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

10 (A). **Theope eupolis.**

Theope eupolis, Schaus, Ent. Amer. vi. p. 19 (♂ ♀) (1890)¹.

T. virgilio similis, sed anticis colore cæruleo minus extenso, posticis dimidio apicali marginis externi late nigro. ♀ nobis ignota.

Hab. MEXICO, Paso de San Juan in Vera Cruz¹ (*Mus. Brit. ex Schaus: ♂*).

10 (B). **Theope talna.** (Tab. CX. figg. 23, 24, ♀.)

Theope talna, Godm. & Salv. Trans. Ent. Soc. 1897, p. 245¹.

♀. Alis nigris ad basin cæruleis, anticis macula subapicali tripartita quoque cærulea: subtus pallide cinnamomeis, posticis maculis duabus submarginalibus nigris cæruleo introrsum limbatis, ad angulum analem maculis aliis evanescentibus juxta eas una utrinque cærulea; fronte inter oculos et corpore subtus cinnamomeis.

Hab. HONDURAS, Ruatan I. (*Gaumer*¹).

A female specimen of a *Theope* captured by Dr. Gaumer on Ruatan Island differs from all others in our collection in having a very restricted amount of blue at the base of the wings, the black coloration very greatly predominating. The underside is of a uniform cinnamon colour, with a few spots near the margin of the anal angle. *T. talna* is allied to *T. virgilius*, but is much darker, both above and below, and has more rounded wings.

10 (c). **Theope diores.** (Tab. CX. figg. 25, 26, ♂; 27, 28, ♀.)

Theope diores, Godm. & Salv. Trans. Ent. Soc. 1897, p. 246¹.

Alis fusco-nigris; anticis ad basin cæruleis, costa omnino fusca; posticis cæruleis, costa late, angulo apicali usque ad maculam magnam apud medium marginis externi, nigro-fuscis, margine interno albido: subtus rufescenti-griseis, posticis fascia margini externo paralleli brunnescente, punctis quibusdam nigris, margini propiore introrsum pallide cæruleo limbatis; corpore supra cæruleo, subtus alis concoloribus.

♀ mari similis, sed anticis colore cæruleo angulum analem versus magis extenso; posticis apice late fuscis, maculis quatuor nigris in serie submarginali prope angulum analem notatis: subtus posticis maculis quatuor submarginalibus majoribus.

Hab. MEXICO, Colima (*mus. Staudinger*¹), Jalapa (*Edwards*¹), Acaguizotla, Tierra Colorada (*H. H. Smith*).

We have seen three males and one female of this species, one of the males having been lent us by Dr. Staudinger. The most nearly allied species is probably the common *T. virgilius*, from which it may at once be recognized by the large dark spot which interrupts the blue coloration of the hind wings near the middle of the outer margin in the male. Mr. Smith's specimens from Western Mexico, from which our figures are taken, were overlooked by us when we first described the insect.

12 (A). **Theope eleutho.** (Tab. CX. figg. 29, 30, ♀.)

Theope eleutho, Godm. & Salv. Trans. Ent. Soc. 1897, p. 247¹.

♀. Alis fusco-nigris; anticis ad basin viridescenti-cæruleis, costa omnino nigricante, maculis tribus subapicalibus in linea obliqua viridescenti-cæruleis; posticis area interna et area discali quoque viridescenti-cæruleis, hac venis nigris intersecta, costa late nigricante, margine interno albicante: subtus glauco-fuscescentibus, linea communi ab angulo anticarum apicali ad medium marginis interni posticarum saturate fusca, anticis ad basin rufescentibus, maculis duabus in cellula albis, posticis maculis parvis septem submarginalibus nigris, alia alba ad cellulæ basin; corpore supra cæruleo, subtus alis concoloribus.

Hab. PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*¹).

Dr. Staudinger has sent us a female of this species, which differs from all others of the genus in our collection. It belongs to the section having a common line on the underside running from the apical angle of the primaries to the middle of the inner border of the secondaries. The apical angle of the primaries is acute and salient, owing to the outer margin being concave towards the point; the anal angle, too, of the secondaries is acute.

12 (B). **Theope mania.** (Tab. CX. figg. 31, 32, ♀.)

Theope mania, Godm. & Salv. Trans. Ent. Soc. 1897, p. 247¹.

♀. *T. eleuthonti* similis, sed alis cærulescentioribus, anticarum apice minus acuto; posticis (præter costam nigram) omnino cæruleis, angulo anali minus producto: subtus pallidioribus, anticis ad basin vix rufescentibus, posticis maculis submarginalibus evanescentibus.

Hab. MEXICO, San Blas (*Richardson*¹).

This is a species having a dark line across the under surface of both wings. We have only received a single female, taken by Mr. Richardson in Western Mexico.

12 (C). **Theope bacenis.**

Theope bacenis, Schaus, Ent. Amer. vi. p. 19 (♂) (1890)¹.

Alis anticis nigris, margine interno ad basin late cæruleo; posticis cæruleis, margine costali nigro: subtus brunneis, fascia communi ab angulo anticarum apicali ad medium marginis analis posticarum saturate fusca, anticis ad basin flavescentibus.

Hab. MEXICO, Coatepec¹ (*coll. Schaus*).

15. **Theope matuta.** (Tab. CX. figg. 33, 34, ♀.)

Theope matuta, Godm. & Salv. Trans. Ent. Soc. 1897, p. 246¹.

♀. Alis nigris, anticis ad basin (costa nigra excepta) nitide cæruleis, venis divisis; posticis area interna usque ad basin nitide cærulea, costa late, margine externo angustiore, nigris: subtus fuscis, anticis costa ad basin rufa, maculis elongatis discalibus albidis transfasciatis, fascia maculosa submarginali coloris ejusdem; posticis maculis sagittiformibus; fronte inter oculos nigra, utrinque albido marginata; palpis nigris antice albidis; corpore fusco, abdomine linea mediana alba.

Hab. COSTA RICA, Santa Clara Valley 1200 feet (*Zurcher*¹).

Allied to *T. thebais* of the Amazon Valley, but with the blue on the upperside of

the wings much brighter. Beneath, the wings are darker and the pale markings more definite, and the rufous base of the costa of the primaries is more extended. We have seen only a single female of this distinct species.

ISAPIS (I. p. 485).

Isapis hera (I. p. 486).

To the locality given, add:—GUATEMALA, Panzos (*Conradt*).

EUMÆUS (II. p. 5).

Eumæus minyas (II. p. 6).

To the localities given, add:—MEXICO, La Venta, Rincon, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Eumæus debora (II. p. 7).

To the localities given, add:—MEXICO, Ciudad Victoria in Tamaulipas (*Richardson*), Atoyac (*H. H. Smith*), Orizaba (*Elwes*).

THECLA (II. p. 8).

Thecla regalis (II. p. 12).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Atoyac (*H. H. Smith*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Thecla cypria (II. p. 13).

To the localities given, add:—MEXICO, Rincon in Guerrero (*H. H. Smith*).

Thecla damo (II. p. 15).

To the localities given, add:—MEXICO, Tierra Colorada, Acapulco, Rincon, La Venta, Teapa (*H. H. Smith*), Atoyac (*Schumann*), Cuesta de Misantla (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

Thecla augustula (II. p. 16).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*).

We now have a pair of this insect from Mexico.

Thecla nepia (II. p. 16).

To the localities given, add:—MEXICO, Acaguizotla, Atoyac, Teapa (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*); PANAMA, Chiriqui (*Trötsch, ex Staudinger*).

Thecla hemon (II. p. 17).

To the localities given, add:—COSTA RICA, Santa Clara Valley (*Zurcher*).

Thecla halesus (II. p. 18).

To the localities given, add:—MEXICO, Venta de Zopilote (*H. H. Smith*), Cuernavaca (*F. D. G.*).

16 (A). **Thecla gaumeri**, sp. n. (Tab. CXI. figg. 1, 2, ♂.)

Thecla halesus, anteà, ii. p. 18 (partim).

T. haleso similis, sed minor, colore cæruleo obscuriore et magis restricto, stigmatè simplici: subtus anticis striga cærulea magis extensa; posticis nigris (nec fuliginosis), maculis ad angulum analem viridibus.

♀. A femina *T. halesi* alis fuscis concoloribus (maculis viridibus ad angulum analem posticarum exceptis) differt.

Hab. MEXICO, Valladolid and Temax in Yucatan (*Gaumer*).

We have seven males and one female of this species, the latter having been previously included by us under *T. halesus*. The simple band on the primaries of the male and the other characters mentioned above separate *T. gaumeri* at once from its northern ally.

Thecla polybe (II. p. 19).

To the localities given, add:—MEXICO, Temax in Yucatan (*Gaumer*).

Thecla carpophora (II. p. 20).

To the localities given, add:—MEXICO, Tampico (*Richardson*), Rincon (*H. H. Smith*), Cuesta de Misantla (*Trujillo*), Temax in Yucatan (*Gaumer*).

The additional specimens (♂ ♀) we have received from Mexico since the publication of the preceding pages throw considerable doubt on the distinctness of this species from *T. inachus*.

Thecla carpasia (II. p. 21).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*), Temax in Yucatan (*Gaumer*).

Sent in some numbers by Dr. Gaumer from Yucatan.

Thecla aufidena (II. p. 22).

To the localities given, add:—MEXICO, Jalisco (*Schumann*), Acaguizotla, Rincon, Atoyac, Teapa (*H. H. Smith*), Vera Cruz, Tabi in Yucatan (*F. D. G.*), Cuesta de Misantla (*Trujillo*); HONDURAS, San Pedro Sula (*Wittkugel*), Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Thecla erybathis (II. p. 26). (Tab. CXI. figg. 3, 4, ♀.)

To the localities given, add:—MEXICO, Xucumanatlan and Amula in Guerrero (*H. H. Smith*).

We have now both sexes of this species from Mexico: the female has the blue on the upperside much paler than in the male, and the white bands on the under surface showing through, those on the primaries beneath extending nearly to the inner margin.

Thecla busa (II. p. 26).

To the localities given, add:—MEXICO, Cuesta de Misantla (*Trujillo*).

Thecla furina (II. p. 28).

To the localities given, add:—MEXICO, Amecameca (*F. D. G.*), Ixtaccihuatl (*Richardson*).

Since we described this species we have obtained three more Mexican specimens; all of these are considerably paler beneath than the single male from Guatemala.

Thecla parthenia (II. p. 29).

To the localities given, add:—MEXICO, Sierra Madre de Tepic (*Richardson*).

We have a single worn male *Thecla* which we place here with some reserve, as it differs from *T. parthenia* in having the dark lines on the underside narrower, and the blotches on the basal half of the secondaries almost obsolete.

Thecla barajo (II. p. 30).

To the localities given, add:—MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

Mr. Smith has sent us five specimens of this species from Eastern Mexico.

Thecla sito (II. p. 31).

Thecla phænna, Godm. & Salv. anteà, ii. p. 31.

To the localities given, add:—MEXICO, Tampico (*Richardson*), La Venta and Dos Arroyos in Guerrero, Atoyac, Frontera, Teapa (*H. H. Smith*), Vera Cruz (*F. D. G.*, *H. H. Smith*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

The very large number of additional specimens received since the publication of the preceding pages convinces us that *T. phænna* cannot be separated from *T. sito*; we have therefore here united them.

Thecla togarna (II. p. 32).

To the localities given, add :—MEXICO, Atoyac, Teapa (*H. H. Smith*) ; NICARAGUA, Matagalpa (*Richardson*).

Thecla herodotus (II. p. 33).

To the localities given, add :—MEXICO, Acapulco, Rincon, Tierra Colorada, Savana Grande, Atoyac, Teapa (*H. H. Smith*), Jalisco (*Schumann*), Cuesta de Misantla (*Trujillo*) ; NICARAGUA, Matagalpa (*Richardson*).

Thecla fusius (II. p. 34).

To the localities given, add :—MEXICO, Cuesta de Misantla (*Trujillo*).

Thecla pastor (II. p. 34).

To the localities given, add :—MEXICO, Xucumanatlan (*H. H. Smith*), Orizaba (*Elwes*), Cuesta de Misantla (*Trujillo*).

Thecla jada (II. p. 35).

To the localities given, add :—MEXICO, Sierra Madre de Tepic, Lake Chapala (*Richardson*), Jalisco (*Schumann*), Tepetlapa, Amula, Venta de Zopilote, Chilpancingo (*H. H. Smith*), Orizaba (*F. D. G. & H. J. Elwes*).

Thecla janias (II. p. 35).

To the localities given, add :—MEXICO, Atoyac (*H. H. Smith*).

Thecla talayra (II. p. 36).

To the localities given, add :—MEXICO, Atoyac, Teapa (*H. H. Smith*).

Thecla palegon (II. p. 37).

To the localities given, add :—MEXICO, Venta de Zopilote, Rincon, Cuernavaca, Atoyac, Teapa (*H. H. Smith*), Vera Cruz (*F. D. G.*).

Thecla meton (II. p. 37).

To the localities given, add :—MEXICO, Rincon, Tierra Colorada, Atoyac (*H. H. Smith*).

Thecla m-album (II. p. 40).

To the localities given, add :—MEXICO, Rincon in Guerrero (*H. H. Smith*).

Sent us in numbers from Western Mexico.

Thecla polibetes (II. p. 41).

To the localities given, add :—MEXICO, Tampico (*Richardson*), Cuesta de Misantla (*Trujillo*), Coatepec (*Brooks*), Atoyac, Teapa (*H. H. Smith*).

Thecla ortygnus (II. p. 41).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Thecla jebus (II. p. 42).

To the localities given, add:—MEXICO, Acaguizotla in Guerrero (*H. H. Smith*).

Thecla brescia (II. p. 43).

To the localities given, add:—MEXICO, Bolaños in Jalisco (*Richardson*), Tierra Colorada, Rincon, Venta de Zopilote, Dos Arroyos, Atoyac (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).

Thecla ligurina (II. p. 44).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Thecla lyde (II. p. 44).

To the localities given, add:—MEXICO, Atoyac, Teapa (*H. H. Smith*).

Thecla temesa (II. p. 45).

To the localities given, add:—MEXICO, Teapa (*H. H. Smith*).

This insect now proves to extend as far north as South-east Mexico, whence Mr. Smith has sent us a single male example.

Thecla mycon (II. p. 46).

To the localities given, add:—MEXICO, Rincon, Atoyac (*H. H. Smith*).

Thecla phobe (II. p. 47).

To the localities given, add:—MEXICO, Atoyac (*H. H. Smith*).

Thecla xami (II. p. 48).

♀. Alis fulvis, marginibus externis et costa anticarum nigro-fuscis: subtus sicut in mari.

To the localities given, add:—MEXICO, Amula (*H. H. Smith*).

84 (A). **Thecla spinetorum**. (Tab. CXI. figg. 5, 6, ♂.)

Thecla spinetorum, Hew. Ill. Diurn. Lep. p. 94, t. 45. ff. 198, 199¹; Boisd. Ann. Soc. Ent. Belg. xii. p. 42².

Thecla ninus, Edw. Trans. Am. Ent. Soc. iii. p. 270³.

Alis et corpore supra fuscis, schistaceo-cæruleo lavatis: subtus rufo-ferrugineis, linea communi transversa, introrsum nigro limbata et in posticis marginem internum versus valde angulata, alba; posticis serie duplici macularum nigrarum ad marginem externum, exteriori maculis duabus ad angulum analem proximis magis distinctis et albo notatis.

Hab. NORTH AMERICA, Colorado³, California^{1 2}.—MEXICO, Bolaños in Jalisco (*Richardson*).

This species must be added to the Central-American list, as we possess a worn specimen of it from Mexico, which agrees with an example from California in our collection. We are indebted to Dr. Holland for its identification, and he has been kind enough to compare a drawing of our Californian insect, which we figure, with Edwards's type of *T. ninus* from Colorado.

Thecla ocrisia (II. p. 49).

To the localities given, add :—MEXICO, Tampico, Lake Chapala (*Richardson*), Atoyac (*H. H. Smith*) ; NICARAGUA, Matagalpa (*Richardson*).

Thecla keila (II. p. 50).

To the localities given, add :—MEXICO, Acaguizotla in Guerrero (*H. H. Smith*).

Thecla tephreus (II. p. 51).

To the localities given, add :—MEXICO, Acaguizotla, Venta de Zopilote, Dos Arroyos, Rincon, Atoyac, Teapa (*H. H. Smith*).

Thecla volupia (II. p. 53).

♀. Alis murinis vix cæruleo basin versus suffusis : subtus sicut in mari.

To the localities given, add :—GUATEMALA, Polochic Valley (*F. D. G., O. S.*).

Since the publication of the preceding pages we have detected the female of this species in our collection.

Thecla syncellus (II. p. 54).

To the localities given, add :—MEXICO, Acapulco, Rio Papagaio, Rincon, Dos Arroyos, Tierra Colorada, Atoyac, Teapa (*H. H. Smith*) ; GUATEMALA, Volcan de Santa Maria (*Richardson*) ; HONDURAS, San Pedro Sula (*Wittkugel*) ; NICARAGUA, Matagalpa (*Richardson*) ; COSTA RICA, Santa Clara Valley (*Zurcher*).

Thecla ochus (II. p. 55).

To the localities given, add :—MEXICO, Cuesta de Misantla (*Trujillo*) ; PANAMA, Chiriqui (*Trötsch, ex Staudinger*).

Thecla pion (II. p. 56).

To the localities given, add :—MEXICO, Orizaba (*Elwes*).

Thecla orasus (II. p. 59).

To the localities given, add :—MEXICO, Jalapa (*F. D. G.*).

Thecla quaderna (II. p. 60).

To the localities given, add :—MEXICO, Puebla 7000 feet (*Elwes*).

The single specimen, a female, from this locality differs from Hewitson's figure in having the submarginal row of red spots on the underside of the secondaries almost obsolete. The example from Guatemala, also a female, previously referred to this species, has the blue coloration more brilliant and less extended on both wings.

Thecla empusa (II. p. 61).

To the localities given, add :—MEXICO, Atoyac (*H. H. Smith*).

Thecla cydrara (II. p. 62).

To the localities given, add :—MEXICO, Teapa (*H. H. Smith*).

Thecla echion (II. p. 63).

To the localities given, add :—MEXICO, Sierra Madre de Tepic (*Richardson*), Mazatlan (*Mathew*), Acapulco, Atoyac, Teapa (*H. H. Smith*); HONDURAS, Ruatan I. (*Gaymer*); NICARAGUA, Matagalpa (*Richardson*).

The three males from Ruatan Island have the orange spots on the underside of the secondaries very large, the outer spots in one individual forming a continuous band.

Thecla crolinus (II. p. 63).

To the localities given, add :—MEXICO, Atoyac (*H. H. Smith*).

Thecla orcynia (II. p. 64).

To the localities given, add :—MEXICO, Atoyac (*H. H. Smith*).

Thecla bassania (II. p. 66).

To the localities given, add :—MEXICO, Orizaba (*Elwes, F. D. G.*).

Found not uncommonly by Mr. Elwes and myself at Jalapa during our visit to that place in 1888.

Thecla orchidia (II. p. 67).

To the localities given, add :—MEXICO, Atoyac, Teapa (*H. H. Smith*).

Thecla hesperitis (II. p. 72).

To the localities given, add :—MEXICO, Atoyac, Teapa (*H. H. Smith*).

Thecla nitetis (II. p. 74).

To the localities given, add :—MEXICO, Rincon (*H. H. Smith*).

Thecla beon (II. p. 74).

To the localities given, add :—MEXICO, Acapulco, Dos Arroyos, Rincon, Venta de Zopilote, La Venta, Tierra Colorada, Atoyac, Fortin, Teapa (*H. H. Smith*), Sierra

Madre de Tepic (*Richardson*), Orizaba (*Elwes, F. D. G.*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Thecla autoclea (II. p. 76).

To the localities given, add :—MEXICO, Rincon, Acaguizotla, Tierra Colorada, Atoyac (*H. H. Smith*), Orizaba (*F. D. G.*), Temax in Yucatan (*Gaumer*).

Thecla sethon (II. p. 77).

To the localities given, add :—MEXICO, Xucumanatlan, Chilpancingo, Amula, Atoyac (*H. H. Smith*).

Thecla clarina (II. p. 79).

To the localities given, add :—MEXICO, Rincon in Guerrero (*H. H. Smith*).

Mr. Smith has sent us examples of both sexes of this species from Western Mexico.

Thecla demonassa (II. p. 80).

To the localities given, add :—MEXICO, Acapulco, Rincon, Atoyac (*H. H. Smith*).

Thecla simæthis (II. p. 81).

To the localities given, add :—MEXICO, Venta de Zopilote, Rincon, Atoyac (*H. H. Smith*), Cuernavaca, Orizaba (*F. D. G.*).

Thecla telea (II. p. 82).

To the localities given, add :—MEXICO, Rincon, Acapulco (*H. H. Smith*).

Thecla gabina (II. p. 82).

To the localities given, add :—MEXICO, Atoyac, Teapa (*H. H. Smith*).

Thecla trebula (II. p. 84).

To the localities given, add :—MEXICO, Teapa (*H. H. Smith*).

Thecla lollia (II. p. 85).

To the localities given, add :—MEXICO, Jalapa (*F. D. G.*).

Thecla lucagus (II. p. 86).

To the localities given, add :—MEXICO, Orizaba (*Elwes*), Atoyac (*H. H. Smith*).

Thecla hicetas (II. p. 87).

To the localities given, add :—MEXICO, Teapa (*H. H. Smith*).

Thecla pætus (II. p. 87).

To the localities given, add :—MEXICO, Chilpancingo, Atoyac (*H. H. Smith*).

Thecla phrutus (II. p. 88).

To the localities given, add :—MEXICO, Rincon, Amula, Atoyac (*H. H. Smith*).

Mr. Smith has sent us specimens of both sexes of this species from Mexico. The female differs from the male in having the inner margin of the primaries broadly suffused with blue towards the base.

Thecla inoa (II. p. 88).

To the locality given, add :—MEXICO, Atoyac (*H. H. Smith*).

We have now received three specimens of this species from Mr. Smith.

Thecla mathewi (II. p. 90).

To the localities given, add :—MEXICO, Dos Arroyos, Atoyac (*H. H. Smith*).

Thecla azia (II. p. 91).

To the localities given, add :—MEXICO, Mazatlan (*Mathew*), Acapulco, Rincon, Venta de Zopilote, Atoyac (*H. H. Smith*), Lake Chapala (*Richardson*).

Thecla rufofusca (II. p. 91).

To the localities given, add :—MEXICO, Orizaba (*coll. Schaus*).

Thecla melinus (II. p. 92).

To the localities given, add :—MEXICO, Durango city (*Becker*), Temax in Yucatan (*Gaumer*).

Thecla bebrycia (II. p. 93).

To the localities given, add :—MEXICO, Cuernavaca (*F. D. G.*), Rincon in Guerrero (*H. H. Smith*), Oaxaca (*coll. Schaus*).

Thecla basalides (II. p. 93).

To the localities given, add :—MEXICO, Tampico (*Richardson*), Atoyac (*H. H. Smith*, *Schumann*), Temax in Yucatan (*Gaumer*).

Thecla yojoa (II. p. 95).

To the localities given, add :—MEXICO, Tierra Colorada, Dos Arroyos, Rincon, Chilpancingo, Atoyac (*H. H. Smith*).

Thecla eurytulus (II. p. 96).

To the localities given, add :—MEXICO, Rincon, Venta de Zopilote, Atoyac (*H. H. Smith*); NICARAGUA, Matagalpa (*Richardson*).

Thecla agra (II. p. 97).

To the localities given, add :—MEXICO, Atoyac (*H. H. Smith, Schumann*), Acaguizotla, Rincon, Acapulco (*H. H. Smith*).

Thecla hecate (II. p. 98).

To the localities given, add :—NICARAGUA, Matagalpa (*Richardson*).

Thecla semones (II. p. 98).

Godman captured a single specimen of this pretty little species at Jalapa in 1888.

Thecla schausi (II. p. 98).

To the locality given, add :—NICARAGUA, Matagalpa (*Richardson*).

Mr. Richardson has sent a male of this curious species from Nicaragua, and we have another example of the same sex very like it labelled as from Paraguay; but it is possible that this latter locality is incorrect.

Thecla sesara, sp. n. (Tab. CXI. figg. 7, 8, ♀.) (To follow *T. insignis*, II. p. 99.)

♀. Alis fusco-nigris, posticis (nisi ad apicem et ad marginem externum) vivide cæruleis, linea angustissima submarginali prope angulum analem coloris ejusdem, ad angulum ipsum spatulatis et ferrugineo tinctis; subtus sericeo-brunneis, anticis linea transversa ultra cellulam (extrorsum fusco limbata) et margine externo rubescentibus; posticis squamis nonnullis cæruleis notatis, linea transversa discali valde irregulari (extrorsum quoque fusco limbata) margineque anali rufis, margine externo obscuriore, prope angulum analem nigro bipunctatis; ciliis ferrugineis, posticis ad angulum analem introrsum albo lineatis.

Hab. MEXICO, Las Vigas in Vera Cruz (*coll. Schaus*).

A single female of this distinct insect from Mexico has been kindly lent us by Mr. Schaus, and we take the opportunity to describe and figure it here, though, in the absence of the male, we cannot place it definitely in our arrangement.

LYCÆNA (II. p. 102).

Lycæna acmon (II. p. 103).

To the localities given, add :—MEXICO, Puebla 7000 feet (*Elwes*), Volcan de Ixtaccihuatl (*Richardson*).

Lycæna isola (II. p. 104).

To the localities given, add :—MEXICO, Ciudad Victoria in Tamaulipas, San Blas, Bolaños (*Richardson*), Puebla (*Elwes*), Cuernavaca, Patzcuaro, Morelia, Orizaba (*F. D. G.*), Atoyac (*H. H. Smith*).

Lycæna gozora.

To the localities given, add :—MEXICO, Pinal, Puebla, Orizaba (*Elwes*), Sierra Madre de Tepic, Jalisco (*Richardson*), Acaguizotla, Omilteme, Xucumanatlan (*H. H. Smith*), Patzcuaro (*F. D. G.*); GUATEMALA, Solola, Volcan de Santa Maria (*Richardson*).

Lycæna cassius (II. p. 105).

To the localities given, add :—MEXICO, Mazatlan (*Mathew*), San Blas (*Richardson*), Acapulco, Venta de Zopilote, Tierra Colorada, Acaguizotla, Rincon, Atoyac, Teapa (*H. H. Smith*), Jalapa (*F. D. G.*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

Lycæna marina (II. p. 106).

To the localities given, add :—MEXICO, Durango city (*Becker*), Ciudad Victoria in Tamaulipas, Sierra Madre de Tepic, Lake Chapala (*Richardson*), Acaguizotla, Atoyac (*H. H. Smith*), Atlixco, Cuernavaca, Orizaba (*F. D. G.*).

Lycæna hanno (II. p. 106).

To the localities given, add :—MEXICO, Acapulco, Dos Arroyos (*H. H. Smith*), San Blas, Bolaños (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

Lycæna zachæina (II. p. 107).

To the localities given, add :—MEXICO, Acapulco (*Mathew*), San Blas, Sierra Madre de Tepic, Bolaños, Jalisco, Lake Chapala (*Richardson*), Dos Arroyos, Rio Papagaio, Tepetlapa, Tierra Colorada, Hacienda de la Imagen, Atoyac (*H. H. Smith*), Cuernavaca, Patzcuaro, Orizaba, Tabi in Yucatan (*F. D. G.*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, Ruatan I. (*Gaumer*).

Lycæna comyntas (II. p. 108).

To the localities given, add :—MEXICO, San Blas, Sierra Madre de Tepic (*Richardson*), Cuernavaca, Orizaba (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*); HONDURAS, Ruatan I. (*Gaumer*).

Lycæna tulliola (II. p. 108).

To the localities given, add :—MEXICO, Sierra Madre de Tepic (*Richardson*), Orizaba (*Elwes*), Atoyac, Teapa (*H. H. Smith*).

Lycæna exilis (II. p. 109).

To the localities given, add :—MEXICO, Morelia (*F. D. G.*).

PEREUTE (II. p. 113).

Pereute charops (II. p. 114).

To the localities given, add :—MEXICO, Sierra Madre de Tepic (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

CATASTICTA (II. p. 116).

Catasticta nimbice (II. p. 118).

To the localities given, add :—MEXICO, Durango city (*Becker*).

We now have specimens of both sexes of this species from Durango.

ARCHONIAS (II. p. 122).

Archonias nigrescens (II. p. 124).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

Three males and one female of this species have been sent us from Honduras. The female, previously unknown, has the fulvous coloration more extended on the upper-side of both wings, closely resembling the male of *A. eurytele*.

HESPEROCHARIS (II. p. 125).

7. **Hesperocharis jaliscana**.

Hesperocharis jaliscana, Schaus, Ent. News, 1898, p. 215¹.

Alis albis; anticis apice et margine externo adjacente nigro suffusis: subtus posticis flavis, macula ad basin coccinea, macula nigra infra cellulam, aliis angulatis in serie costali et apicali fumosis.

♀. Alis pallide flavis, aliter sicut in mari.

Hab. MEXICO, Guadalajara (*coll. Schaus*¹).

We do not possess specimens of this insect, and our diagnosis has been taken from Mr. Schaus's description.

PIERIS (II. p. 128).

In addition to the species of this genus noticed below, Dr. Butler [Ann. & Mag. Nat. Hist. (7) ii. p. 22] has recorded two others from within our limits: *P. ausia*, Boisd., from Mexico, and *Pieris*, sp. n.?, from Panama. The first of these does not agree with the description of Boisduval's insect, and the locality is certainly incorrect. The second is perhaps a variety of *P. sevata*, Feld., from Colombia and Venezuela: the four specimens of it in the British Museum are labelled as having been found at Panama during the voyage of H.M.S. 'Herald'; but they were more probably obtained farther south, and the same remark applies to *P. marana*.

Pieris protodice (II. p. 130).

To the localities given, add :—MEXICO, Durango city (*Becker*), Sierra Madre de Tepic (*Richardson*).

In our remarks, referred to by Dr. Butler*, under the genus *Pieris* (anteà, p. 129), we state that the male of *P. protodice* has no short third subcostal branch in the apex of the primaries; but this is hardly correct, the apical furca being present in many of our specimens, though it is wanting in the two we prepared for examination.

* Ann. & Mag. Nat. Hist. (7) ii. pp. 13, 14 (1898).

4. *Pieris kicaha*.

Pieris kicaha, Reak. Proc. Ent. Soc. Phil. ii. p. 349 (1863)¹; Butl. Ann. & Mag. Nat. Hist. (7) ii. p. 17².

Pieris notistriga, anteà, ii. p. 132³.

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*); PANAMA, Pearl Is. (H.M.S. 'Gannet,' *ex J. J. Walker*).—COLOMBIA, Rio Dagua².

Reakirt's type of *P. kicaha* was from Honduras¹, whence we have already recorded the species.

4 (A). *Pieris marana*.

Pieris marana, Doubl. Ann. & Mag. Nat. Hist. xiv. p. 421¹; Hew. Exot. Butt., *Pieris*, t. 6. f. 42²; Butl. Ann. & Mag. Nat. Hist. (7) ii. p. 17³.

P. kicahæ, Reak. (*notistriga*, Butler), similis, sed marginibus nigris latioribus: subtus anticis striga ad cellulæ finem a costa ad marginem externum transeunte, nigra; posticis fascia cellulam transeunte latiore et marginem internum versus lineam rufam includente, margine externo late nigro (nec fulvo maculato).

♀ nobis ignota.

Hab. PANAMA (*Mus. Brit.*³).—ECUADOR, Guayaquil ?¹.

Dr. Butler has recorded this species from Panama on the authority of two specimens found during the voyage of H.M.S. 'Herald'; but we think it probable that they were found in Ecuador, whence we possess specimens.

Pieris monuste (II. p. 132).

To the localities given, add:—MEXICO, Manzanilla (*Lloyd*), Sierra Madre de Tepic (*Richardson*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

Dr. Butler [Ann. & Mag. Nat. Hist. (7) ii. p. 21] adopts the name *P. phileta*, Fabr., for the well-known *P. monuste*; but in this we are not inclined to follow him.

Pieris viardi (II. p. 133).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Pieris noctipennis (II. p. 134).

Pieris noctipennis, Butl. Ann. & Mag. Nat. Hist. (7) ii. p. 20⁴.

To the localities given, add:—NICARAGUA (*Mus. Brit.*⁴).

Dr. Butler (*loc. cit.*) doubts the distinctness of *P. noctipennis* from the South American *P. locusta*, Feld., and we think this view may possibly prove correct.

Pieris josepha (II. p. 135).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*).

BIOL. CENTR.-AMER., Rhopal., Vol. II., October 1901.

Pieris elodia (II. p. 136).

Dr. Butler [Ann. & Mag. Nat. Hist. (7) ii. p. 14] adopts the name of *P. (Leptophobia) aripa*, Boisd., for this species.

DAPTONOURA (II. p. 138).

Daptonoura isandra (II. p. 139).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

CALLIDRYAS (II. p. 139).

Callidryas philea (II. p. 140).

To the localities given, add:—MEXICO, Durango city (*Becker*); GUATEMALA, Volcan de Santa Maria (*Richardson*); NICARAGUA, Matagalpa (*Richardson*); COSTA RICA, Santa Clara Valley (*Zurcher*).

PHŒBIS (II. p. 142).

Phœbis rurina (II. p. 143).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Phœbis agarithe (II. p. 145).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

RHABDODRYAS (II. p. 146).

Rhabdodryas trite (II. p. 146).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

ANTEOS (II. p. 148).

Anteos clorinde (II. p. 148).

To the localities given, add:—MEXICO, Durango city (*Becker*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Anteos mærule (II. p. 149).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

KRICOGONIA (II. p. 150).

Kricogonia unicolor (II. p. 151).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

Mr. Richardson has sent us a specimen of this species, and also others of *K. lyside*, from Nicaragua.

COLIAS (II. p. 151).

Colias cesonia (II. p. 153).

To the localities given, add:—MEXICO, Durango city (*Becker*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

TERIAS (II. p. 154).

Terias nicippe (II. p. 155).

To the localities given, add:—MEXICO, Durango city (*Becker*); GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Richardson*).

Terias xanthochlora (II. p. 161).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Terias tenella (II. p. 165).

Terias linda, W. H. Edw. Papilio, iv. p. 53 (1884)⁹.

To the localities given, add:—MEXICO, near the boundary-line of Arizona (*Morrison*⁹).

ACMEPTERON (II. p. 179).

Acmepteron nemesis (II. p. 179).

Dismorphia nemesis, Staud. Exot. Schmett. t. 15 (♂ ♀)⁴.

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

ENANTIA (II. p. 181).

Dr. Skinner [Syn. Cat. N. Am. Rhop. p. 60 (1898)] has recorded *Leptalis melite* (Linn.) from "New Mexico and Mexico," his insect no doubt being *Enantia jethys*, a common species in Mexico and Guatemala; the northern habitat seems to require confirmation.

Enantia albania (II. p. 183).

Dismorphia cornelia, Staud. Exot. Schmett. p. 25, t. 15⁴.

Dr. Staudinger has figured a male of this species as *Dismorphia cornelia*, Feld., at the same time proposing the name *D. amalia* for it, in the event of the specimens from Costa Rica and Chiriqui⁴ proving to be distinct.

PAPILIO (II. p. 190).

Papilio iphidamas (II. p. 193).

To the localities given, add:—HONDURAS, Ruatan I. (*Gaumer*); NICARAGUA, Matagalpa (*Richardson*).

Papilio sadyattes (II. p. 195).

To the locality given, add :—COSTA RICA, Santa Clara Valley (*Zurcher*).

Papilio photinus (II. p. 196).

To the localities given, add :—NICARAGUA, Matagalpa (*Richardson*).

Papilio alopheus (II. p. 197).

To the localities given, add :—MEXICO, Guadalajara (*Goldsmith, Buller*).

Papilio lycidas (II. p. 201).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

Papilio numitor (II. p. 202).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

18 (A). **Papilio iopas**. (Tab. CXI. figg. 9, 10, ♂.)

Papilio iopas, Godm. & Salv. Trans. Ent. Soc. 1897, p. 248¹.

P. copanæ similis, sed anticis supra omnino immaculatis; posticis fascia maculosa angustiore a margine externo magis remota.

Hab. MEXICO, Colima (*mus. Staudinger*¹).

This species was described from a single male sent us by Dr. Staudinger; it is allied to *P. copanæ*, but differs as noted above.

18 (B). **Papilio eracon**. (Tab. CXI. figg. 11, 12, ♂.)

Papilio eracon, Godm. & Salv. Trans. Ent. Soc. 1897, p. 248¹.

Alis saturate æneo-nigricantibus, ciliis inter venas ochraceis; anticis maculis sex submarginalibus, ad angulum apicalem evanescentibus, viridi-ochraceis; posticis paulo nitentioribus, maculis sex discalibus fere rotundis et punctis sex submarginalibus (horum duobus inter venam medianam et ramum ejus secundum, viridi-ochraceis: subtus fuscis, anticis ad basin nigricantibus, maculis tribus ad angulum analem aliisque indistinctis circa cellulæ finem ochraceis; posticis maculis septem transversim elongatis nigro limbatis rubidis et inter eas punctis glauco-albidis, extra eas punctis sex majoribus submarginalibus ochraceis; abdomine supra ochraceo, segmentis nigro marginatis; corpore toto subtus flavo maculato.

Hab. MEXICO, Colima (*mus. Staudinger*¹).

A male of this distinct species differs from all forms of this section of *Papilio* found in Central America in having the spots of the secondaries in a submarginal series away from the cell and the costa, and beyond them are some small submarginal spots. Beneath, the coloration of the margin of the secondaries is very marked: besides the usual black-margined rufous spots, there are whitish spots between them, as well as ochreous ones next the margin.

Papilio aconophos (II. p. 206).

To the localities given, add:—MEXICO, Guanajuato (*Dugès*).

Dr. A. Dugès has sent us a female of this species from the above locality; it has the wings deep velvety-black on the upperside and the spots on the secondaries bright crimson.

Papilio belesis (II. p. 207).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Papilio pharax (II. p. 211).

To the localities given, add:—MEXICO, Coatepec (*Brooks*).

Papilio metaphaon (II. p. 212). (Tab. CXI. figg. 13, 14, ♂.)

We take the opportunity of figuring the type of this species, supposed to be of Mexican origin.

Papilio fenochionis (II. p. 222).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*).

Sent us in some numbers from the Pacific slope of Guatemala.

Papilio thoas (II. p. 223).

Var. *Papilio epithoas*, Oberth. Bull. Soc. Ent. Fr. 1897, pp. 179, 180, fig. 5¹².

To the localities given, add:—HONDURAS, Ruatan I. (*Gaumer*).

M. Oberthür has described and figured an extreme form of this very common species from Mexico¹². This insect, which he submitted to us for examination, has the submarginal row of lunules on the primaries extending nearly to the apex, and the grey-blue series of spots, forming the transverse band on the underside of the secondaries, more extended. He considers it a local race of *P. thoas*. We have in our series three specimens approaching to, but not quite corresponding with, his example.

Papilio epidaurus (II. p. 224).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Papilio ornythion (II. p. 227).

To the locality given, add:—MEXICO, Coatepec (*Brooks*); GUATEMALA, Volcan de Santa Maria (*Richardson*).

We now have two males of this species—the one from Mexico agreeing with the type, the other having the marginal spots on the primaries nearly obsolete and the discal band of the secondaries narrower.

Papilio pandion (II. p. 230).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

Papilio pharnaces (II. p. 231).

To the localities given, add :—MEXICO, Guanajuato (*Dugès*).

Papilio polyxenes (II. p. 242).

To the localities given, add :—MEXICO, Durango city (*Becker*); NICARAGUA, Matagalpa (*Richardson*).

BARONIA (to follow the genus *Papilio*, II. p. 243).

Baronia, Salvin, Trans. Ent. Soc. 1893, p. 331.

Allied to *Papilio*, and with the arrangement of the median nervure and its branches with relation to the lower discocellular of the primaries similar ; the subcostal, however, has only two branches instead of four, the first arising at a distance from the end of the cell about equal to its width, and the second the same distance beyond ; the usual third branch from the end of the cell is wanting, as well as either the first or second before the end of the cell ; the upper discocellular is short and the middle discocellular about twice as long as the lower. Antennæ very short, less than the first median segment of the primaries, with a comparatively long thick club. Palpi very short, hardly perceptible amongst the long hairs on either side of the haustellum. Frontal scales long and hair-like, but drawn downwards between the eyes and not erect as in *Papilio*. Legs with short spiny joints ; a distinct epiphysis on the anterior tarsi.

1. **Baronia brevicornis.** (Tab. CXI. figg. 15, 16, ♂ ; 17, 18, ♀.)

Baronia brevicornis, Salv. Trans. Ent. Soc. 1893, p. 331¹.

Alis fuscis, anticis maculis in seriebus tribus arcuatis ochraceis ; posticis litura fere totam cellulam occupante et costam versus extendente, maculis tribus infra venam medianam triangulum formante, aliisque sex parvis in serie submarginali, omnibus ochraceis : subtus pallidioribus, anticis maculis ut supra, una quoque apicali, aliisque parvis marginalibus, iis tantum apicem versus argenteis ; posticis maculis omnibus argenteis, iis in serie submarginali elongatis et ad apicem extendentibus, una parva ultra cellulam et linea interrupta marginali angulum analem versus notatis ; ciliis inter venas albidis.

♀ mari similis, sed major et maculis ochraceis majoribus, aliis margines externos versus coloris ejusdem et in posticis plus minusve confluentibus.

Hab. MEXICO, Sierra Madre del Sur, near Chilpancingo, 4500 feet (*Baron*¹).

We are indebted to Mr. Baron for a pair of this interesting species, which, with a few others, were captured by himself in Western Mexico, in the months of June and July, a few years ago. The shortness of the antennæ and the peculiar neuration of the wings at once show that it cannot be referred to any known genus of Papilionidæ.

PYRRHOPYGE (II. p. 246).

Dr. Skinner [Syn. Cat. N. Am. Rhop. p. 99 (1898)] has recorded *P. araxes* (anteà, p. 252) from Arizona, thus extending the northern distribution of the genus.

Pyrrhopyge gellias (II. p. 248). (Tab. CXII. figg. 1, 2, ♂.)

To the localities given, add:—PANAMA, Chiriqui (*mus. Staudinger*).

We have now seen a female of this species, which differs from the type, a male, in its much larger size; the outer margins of both wings are more rounded, and the angular projection at the end of the first median branch of the secondaries is wanting.

MYSORIA (II. p. 253).

Mysoria venezuelæ (II. p. 254).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

JEMADIA (II. p. 260).

Jemadia licinus (II. p. 264).

Erycides licinus, Möschl., from Chiriqui, proves, on examination of the type, to be inseparable from *Phocides distans* (H.-S.) (anteà, p. 294), of which it becomes a synonym. The insect from the Kaden collection described by us under the name of *J. licinus* we are now convinced, as we suspected at the time, is a specimen of *Phocides pygmalion* (Cram.) (anteà, p. 292), with the head of a *Jemadia* attached! Plötz himself quotes his *Pyrrhopyga dysoni*, from Chiriqui, as synonymous with *Erycides licinus*, Möschl.

EUDAMUS * (II. p. 270).

Eudamus metophis (II. p. 276).

Thymele metophis, Scudd. Rep. Peabody Ac. Sci. iv. p. 69 (1872)³.

To the localities given, add:—MEXICO, Tehuantepec³; GUATEMALA¹.

Eudamus dorantes (II. p. 278).

Thymele protillus, Scudd. Rep. Peabody Ac. Sci. iv. p. 68 (1872)⁶.

To the localities given, add:—MEXICO, Tehuantepec⁶.

Eudamus zilpa (II. p. 279).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

* Salvin examined the type of *Thymele domingo*, Scudd., from Haiti, in 1896, and noted that it did not differ from *Eudamus esmeraldus* (Butl.) (anteà, p. 278); it is probable, however, that Scudder's insect will prove to be a variety of *E. proteus*, when the genitalia of the male are examined.

Eudamus albofasciatus (II. p. 280).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

Eudamus alcæus (II. p. 281).

Thymeles montezuma, Scudd. Rep. Peabody Ac. Sci. iv. p. 70 (1872) ⁴.

To the localities given, add :—MEXICO, Tehuantepec ⁴; HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

The name *E. alcæus*, Hew., has five years' priority over that of Scudder (cf. *anteà*, p. 636).

17 (A). **Eudamus cachinnans**, sp. n. (Tab. CXII. figg. 3, 4, ♂.)

Alis fuscis, anticis fascia lata mediana per cellulam venis divisa, altera angustiore subapicali curvata, maculis duabus subquadratis inter eas, proxima majore, omnibus hyalinis; posticis striga mediana elongata indistincta grisea, margine interno dense pilis ferrugineis vestitis, ciliis (nisi ad apicem) albis: subtus anticis ut supra, posticis striga elongata alba cæruleo tincta, punctis nigricantibus duobus includente; capite et thorace supra indistincte viridi suffusis.

Hab. PANAMA, Chiriqui (*Trötsch, ex Staudinger*).

We have received a male and female of this species from Dr. Staudinger, who sent them under the name of *E. ridens*, Hew., both occurring in Chiriqui. It differs, however, from that insect, of which we now possess both sexes, in having the hyaline spot on the disc of the primaries much less angulate, forming a more regular fascia; the secondaries have the whitish streak on the disc but very faintly indicated, the white tuft of hairs towards the anal angle absent, and the longitudinal band on the underside somewhat broader, and the head and thorax are suffused with green.

19 (A). **Eudamus biolleyi**. (Tab. CXII. figg. 5, 6, ♂.)

Eudamus biolleyi, Mab. Bull. Soc. Ent. Fr. 1900, p. 230 ¹; Godm. & Salv. *anteà*, ii. p. 635 ².

Alis nigro-fuscis viridi-suffusis, anticis fascia mediana interrupta per cellulam, altera subapicali angustiore, maculis duabus inter eas, proxima majore, omnibus hyalinis; posticis ciliis (nisi ad apicem) et cauda albis: subtus ut supra, anticis litura cærulea angulum analem versus; posticis striga lata elongata marginem externum versus cæruleo-alba maculis duabus nigris includente.

Hab. COSTA RICA ², Pecara (*coll. Joannis* ¹).

The Abbé Joannis has been kind enough to lend us the type of this insect, which, as Mabilles notes, is a very close ally of the Guatemalan *E. crison*, described and figured in this work from an imperfect female. It differs, however, from that species in having much smaller hyaline spots on the primaries, the median band being narrower and interrupted, the secondaries are without spots on the upperside, the long stripe beneath is nearer the outer margin and somewhat differently shaped, and the tails and part of the fringe are white. It is not improbable that this last-named character will also be found in *E. crison* when perfect specimens are obtained.

Eudamus asine (II. pp. 283, 635).*Eudamus asine*, Mab. & Vuill. Nov. Lep. iv. p. 27, t. 4. f. 2² *.*Thymele vitreus*, Scudd. Rep. Peabody Ac. Sci. iv. p. 68 (1872)³.

Scudder's type of *T. vitreus*, from Venezuela³, which we have examined, does not differ from *E. asine*.

Eudamus undulatus (II. p. 286).*Thymele sumichrasti*, Scudd. Rep. Peabody Ac. Sci. iv. p. 69 (1872)⁴.

Since our enumeration of the species of this genus was published we have seen the type of *T. sumichrasti*, Scudd., and find that it is referable to *E. undulatus*, Hew., and not to *E. eurycles* (anteà, p. 272), under which we somewhat doubtfully placed it. The locality quoted⁴, Tehuantepec, must therefore be transferred to *E. undulatus*.

GONIURUS (II. p. 287).

Goniurus cœlus (II. p. 287).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

PHOCIDES (II. p. 292).

Phocides pygmalion (II. p. 292).*Jemadia licinus*, anteà, p. 264 (nec Möschl.).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Phocides belus (II. p. 293).

To the localities given, add:—MEXICO, San Blas (*Baron*).

Phocides distans (II. p. 294).*Jemadia licinus*, anteà, ii. p. 264 (excl. descr.).

Erycides licinus, Möschl. (= *Pyrrhopyga dysoni*, Plötz), from Chiriqui, as noted above (anteà, p. 731), must be placed as a synonym of *P. distans*.

Phocides urania (II. p. 294).

This species has been figured by Mr. Aaron in the 'Entomological News,' ii. p. 101, t. 1. f. 1.

Phocides lilea (II. p. 296).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

* *E. auginus*, Hew. (anteà, p. 283), is also described and figured by MM. Mabilie & Vuillot, *loc. cit.* p. 31, t. 4. fig. 6.

HETEROPIA (II. p. 296).

1 (A). **Heteropia cyda**, sp. n. (Tab. CXII. figg. 7, 8, ♂.)

H. bryaxi similis, sed posticis tantum sordide ochraceo tinctis, anticis maculis et punctis omnibus obscurioribus (iis in costam fere obsoletis) et flavo- (nec albo-) hyalinis: subtus posticis fasciis transversis obscurioribus et magis angulatis, extrorsum disco albido multo latiore ad angulum analem extenso; ciliis griseis, ad venarum fines nigro-fuscis.

Hab. HONDURAS, San Pedro Sula (*Wittkugel*).

Of this species we have a single male. It is a close ally of *H. bryaxis*, from which it differs in the more uniform coloration on the upperside; the spots on the primaries are considerably smaller and yellowish (instead of white); and the secondaries, too, have a conspicuous broad white band beneath, reaching from the anal angle towards the apex.

Heteropia melon (II. p. 297).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

EPARGYREUS (II. p. 299).

Epargyreus exadeus (II. p. 299).

Epargyreus orizaba, Scudd. Rep. Peabody Ac. Sci. iv. p. 70 (1872)⁴.

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

Scudder's type of *E. orizaba*, which we have seen, was from Guatemala⁴, whence we have already recorded the insect (cf. *anteà*, p. 635).

PROTEIDES (II. p. 301).

Proteides idas (II. p. 301).

To the localities given, add:—GUATEMALA, Cahabon (*Champion*); HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

ACOLASTUS (II. p. 303).

Acolastus amyntas (II. p. 304).

To the localities given, add:—GUATEMALA, Volcan de Santa Maria (*Richardson*); HONDURAS, San Pedro Sula (*Wittkugel*).

TELEGONUS (II. p. 305).

8. **Telegonus megalurus**.

Telegonus megalurus, Mab. Petites Nouv. Ent. ii. p. 162 (1877)¹; Ann. Soc. Ent. Belg. xxi. p. 25 (1878)².

Telegonus consus, *anteà*, ii. p. 309, t. 77. ff. 20–22³.

Since our description of *T. consus* was published we have seen the type of *T. megalurus*, Mab., from Colombia¹, and find that the two insects do not differ; the above correction in the synonymy is therefore necessary (cf. *anteà*, p. 635).

THYMELE (II. p. 311).

Thymele fulgurator (II. pp. 311, 635).

Goniloba azul, Reak. Proc. Acad. Phil. 1866, p. 340⁸.

To the localities given, add:—MEXICO, Vera Cruz⁸; HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

1 (A). **Thymele polias**, sp. n. (Tab. CXII. figg. 9, 10, ♀.)

♀. Alis fuscis, anticis ad basin, posticis dimidio interiore et corpore supra, pilis viridi-griseis vestitis; anticis fascia obliqua lata, venis divisa, a costæ medio prope angulum analem extendente, albo-hyalina: subtus ut supra, sed anticis margine interno albidis, regione costali anticarum, et dimidio interno posticarum dense, squamis pallide ochraceis tectis; corpore subtus coloris ejusdem; anticis ad fasciæ finem et posticis ad apicem anguste albo ciliatis.

Hab. PANAMA, Chiriqui (*mus. Staudinger*).

The single female Dr. Staudinger has sent us for examination is all we know of this insect. It appears to be a close ally of *T. phrynicus* (Hew.), from the corresponding sex of which it differs in the white band of the primaries being less iridescent and almost reaching the outer margin; the cilia only of the secondaries are narrowly whitish; and the inner margin of the primaries is white beneath.

Thymele aulestes (II. p. 315).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

NASCUS (II. p. 320).

Nascus phocus (II. p. 320). (Tab. CXII. figg. 11, 12, ♀, var.)

Dr. Staudinger has sent us a female of this insect from Chiriqui, which differs from our other specimens of the same sex in having the base of the primaries and the greater part of the secondaries clothed with reddish hairs (in this respect resembling some of our more brightly-coloured males); the secondaries, too, have the outer portion uniformly dark beneath, with a projecting streak at the end of the cell. Our figure of the insect is taken from this example.

2. **Nascus cous**.

Telegonus cous, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 205 (♂)¹.

Nascus eugamon, *anteà*, ii. p. 321, t. 78. ff. 20, 21².

To the localities given, add:—PANAMA, Chiriqui (*Trötsch, ex Staudinger*).—VENEZUELA¹.

Since our description of *N. eugamon* was published we have seen the type of *Telegonus cous*, Möschl., and find that they belong to the same species. Dr. Staudinger has sent us a specimen of it under the name of *T. cæpio*.

3. *Nascus gizala*.

Telegonus gizala, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 207 (♀)¹.

Nascus evathlus, anteà, ii. p. 322, t. 78. ff. 22, 23².

Since our description of this species was published we have seen the type of *T. gizala*, and find that it does not differ from *Eudamus cephisus*, Hew., or *N. evathlus* (Mab.). Möschler's type was from Colombia¹.

Nascus cæpio (II. p. 322).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

6. *Nascus euribates*.

Papilio euribates, Cram. Pap. Exot. t. 393. f. D (♀) (1782)¹.

Nascus euribates, Wats. P. Z. S. 1893, p. 28².

Papilio nicias, Fabr. Mant. Ins. ii. p. 86 (1787)³.

Telegonus hesus, Doubl. & Hew. Gen. Diurn. Lep. ii. t. 78. f. 5 (♂)⁴.

Eudamus hesus, Aaron, Ent. News, i. p. 25⁵; ii. p. 101, t. 1. f. 2 (♂)⁶.

Eudamus etias, Hew. Descr. Hesp. p. 13 (♀)⁷.

Alis rufo-fulvis, anticis marginem externum versus obscurioribus, maculis tribus discalibus magnis, infima maxima, ea in medio sagittiforme, aliisque duabus (interdum tribus) subapicalibus, omnibus flavo-hyalinis; posticis margine costali late, maculis variis in serie submarginali, alia ad cellulæ finem, duabusque basin anticearum versus (interdum absentibus), omnibus obscure fuscis: subtus fere ut supra, sed brunnescentioribus; posticis maculis paginæ superioris plus minusve distinctis et interdum ochraceo notatis.

♀ mari similis, sed brunnescentioribus; anticis maculis discalibus minoribus et magis separatis, macula quoque apud costæ medium flavida: subtus margine interno anticearum pallidiore.

Hab. MEXICO⁵; CENTRAL AMERICA⁵.—SOUTH AMERICA to Brazil.

This well-known Tropical-American species has been recorded by Mr. Aaron⁵ from the Mexican boundary of Texas, as well as from Central America, and we therefore include it in our fauna. We think, however, that these localities require confirmation. Our description is taken from South-American specimens.

BUNGALOTIS (II. p. 323).

Bungalotis midas (II. p. 324).

To the localities given, add:—HONDURAS, San Pedro Sula (*Wittkugel*).

We now possess a male of *B. midas* from Honduras, the second we have seen from within our limits. It is possible that the insect we described as the female of this species does not belong to it, and that *B. astylos* (of which the male is not known) may prove to be the other sex of *B. midas*.

Bungalotis heras (II. p. 325). (Tab. CXII. figg. 13, 14, ♀.)

♀ mari similis, sed major et obscurior, anticis maculis discalibus quatuor, infima minuta, aliis ut in mari, sed magis divisis et omnibus albo-hyalinis: subtus posticis maculis ochraceis.

We have now seen a female of this species from Chiriqui in Dr. Staudinger's collection, and take the opportunity of figuring it.

CECROPTERUS (II. p. 327).

Cecropterus neis (II. p. 328).

Cecropterus dhega, Mab. Compt. Rend. Soc. Ent. Belg. xxxv. p. lxxvii (1891)⁴.

C. dhega appears to us, to judge from the description, to be nothing more than a form of this variable insect; the type was obtained at Jalapa⁴, whence we have already recorded the species (cf. *anteà*, ii. p. 635).

MURGARIA (II. p. 332).

Murgaria albociliata (II. p. 333).

Telegonus vespasius, Butl. Cat. Diurn. Fabr. Lep. p. 263¹ (? Fabr.).

Dr. Butler¹, who has identified this species as *Hesperia vespasius*, Fabr., states that there is a specimen from Nicaragua in the British Museum which probably belongs to it.

1 (A). **Murgaria leucophrys**.

Murgaria leucophrys, Mab. Ann. Soc. Ent. Fr. 1897, p. 183¹.

Murgaria albociliata, *anteà*, ii. p. 333 (partim)².

M. albociliatæ similis, sed anticis quoque albo ciliatis.

Hab. PANAMA, Chiriqui¹.—COLOMBIA, Bogota¹.

The specimens from Panama and Colombia previously referred to *M. albociliata* differ from the more northern insect in having the fringe of both wings white, and this form has been separated by Mabille under the name of *M. leucophrys* (cf. *anteà*, p. 635).

COGIA (II. p. 338).

Cogia eluina (II. p. 339).

To the localities given, add:—NICARAGUA, Matagalpa (*Richardson*).

Cogia hippalus (II. p. 340).

To the localities given, add:—MEXICO, Colima (*mus. Staudinger*).

TYPHEDANUS (II. p. 341).

Typhedanus alladius (II. p. 342).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*, in *mus. Staudinger*).

ÆTHILLA (II. p. 343).

Æthilla echina (II. p. 344).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

Æthilla lavochrea (II. pp. 345, 635).

Achlyodes athymnios, Möschl. Verh. zool.-bot. Ges. Wien, 1878, p. 225 (♀) ⁴.

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

Since our description of this species was published we have seen the type of *A. athymnios*, Möschl., and find that it does not differ from *Æ. lavochrea*. Möschler ⁴ merely gives Central America as locality.

PYTHONIDES (II. p. 358).

Pythonides cerialis (II. p. 358).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

CYCLOSÆMIA (II. p. 375).

Cyclosæmia anastomosis (II. p. 376).

Cyclosemia gratiosa, Mab. Ann. Soc. Ent. Fr. 1897, p. 194 ¹.

Mons. Mabilie has lent us the type of *C. gratiosa* from Chiriqui ¹, and it seems to us to be nothing more than a variety of *C. anastomosis* with the whitish coloration more extended on the underside of the secondaries (cf. *anteà*, p. 635).

ECHELATUS (II. p. 378).

Echelatus varius (II. p. 379).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

CELÆNORRHINUS (II. p. 381).

2. Celænorrhinus fritzgaertneri.

Pleusioneura fritzgaertneri, Bailey, Bull. Brooklyn Ent. Soc. iii. p. 62 (1880) ¹.

Celænorrhinus variegatus, *anteà*, ii. p. 383, t. 85. ff. 2–4 ².

To the localities given, add :—SALVADOR, Volcan de San Miguel (*Fritzgaertner* ¹).

On reading Dr. Bailey's description of *P. fritzgaertneri* we have little doubt that it applies to the insect described by us under the name of *C. variegatus*, and the above change in the synonymy is therefore necessary (cf. *anteà*, p. 635). He states that swarms of this butterfly were found in an old deserted mine, at a depth of eighty feet, in Salvador, in March 1879.

MYLON (II. p. 384).

Mylon pulcherius (II. p. 385).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

CARRHENES (II. p. 388).

Carrhenes fuscescens (II. p. 389).

To the localities given, add :—NICARAGUA, Matagalpa (*Richardson*).

ACHLYODES (II. p. 394).

Achlyodes cœliginea (II. p. 395).

Hesperia cœliginea, Mab. Bull. Soc. Ent. Belg. xxvii. p. lxxv (1883) ¹.

Achlyodes caliginea, *anteà*, ii. p. 395, t. 86. ff. 9, 10 ².

Since our diagnosis of this species was published we have found Mabilles' original description of *H. cœliginea* ¹, and the above correction in the synonymy becomes necessary. The types were from Colombia and Brazil.

Achlyodes calavius (II. p. 395).

To the localities given, add :—GUATEMALA, San Juan in Vera Paz (*Champion*); COSTA RICA (*mus. Staudinger*).

The six specimens we have now seen show considerable variation in size.

Achlyodes bubaris (II. p. 395).

To the localities given, add :—GUATEMALA, Zapote (*Champion*).

6. **Achlyodes cyrna**.

Achlyodes cyrna, Mab. Bull. Soc. Ent. Fr. 1895, p. lvi (Feb. 27) ¹.

Achlyodes fasciata, *anteà*, ii. p. 396, t. 86. f. 17 (March 1895) ².

As we have already noted (*anteà*, pp. 430, 635), Mabilles' name has priority. His type was also from Chiriqui ¹.

PACHES (II. p. 398).

Paches polla (II. p. 399).

♀ mari similis, sed colore cyanea absente, punctis duobus minutis, uno inter ramos medianos primum et secundum, secundo margini interiori proximo, hyalinis.

To the localities given, add :—GUATEMALA, San Gerónimo (*Champion*).

We now give a description of the female of this species, of which we possess three examples, two from Costa Rica and one from Guatemala.

EANTIS (II. p. 404).

Eantis busirus (II. p. 404).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*); NICARAGUA, Matagalpa (*Richardson*).

Eantis thraso (II. p. 405).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

DOBERES (II. p. 407).

1. **Doberes hewitsonius**.

Achlyodes hewitsonius, Reak. Proc. Ac. Phil. 1866, p. 340 (Nov.)¹.

Doberes mexicanus, anteà, ii. p. 407, t. 87. f. 11².

To the localities given, add :—MEXICO, near Vera Cruz (*Edwards*¹).

Reakirt's description of *A. hewitsonius*¹ was overlooked by us in our first enumeration of the species of Hesperiniæ; it antedates that of Felder by three months (cf. *anteà*, p. 635).

EBRIETAS (II. p. 418).

Ebrietas osyris (II. p. 419).

To the localities given, add :—HONDURAS, San Pedro Sula (*Wittkugel*).

THEAGENES (II. p. 428).

In our first enumeration of the species of this genus, two were accidentally omitted: they are described on pp. 459, 460.

STAPHYLUS (II. p. 429).

5. **Staphylus mazans**.

Carcharodus mazans, Reak. Proc. Ac. Phil. 1866, p. 335¹.

Staphylus ascalaphus, anteà, ii. p. 432, t. 89. ff. 12–15².

Reakirt's types of *C. mazans* were from Vera Cruz, whence we have already recorded this insect (cf. *anteà*, p. 635).

HELIOPETES (II. p. 444).

Heliopetes macaira (II. p. 447).

Leucoscirtes oceanus, Scudd. Rep. Peabody Acad. Sci. iv. p. 73 (1872) ⁶.

To the localities given, add :—MEXICO, Tehuantepec ⁶.

CHIOMARA (II. p. 453).

Chiomara asychis (II. pp. 453, 635).

Pyrgus georgina, Reak. Proc. Acad. Phil. 1868, p. 88 ⁵.

To the localities given, add :—MEXICO, Vera Cruz ⁵.

PHANES, nomen nov.

Phanis, anteà, ii. p. 548 (Nov. 1900).

The name *Phanis* is preoccupied in Coleoptera (Fairmaire, 1893), and we therefore change it to *Phanes*.

1. **Phanes justinianus**.

Phanis justinianus, anteà, ii. p. 549, t. 99. ff. 24-27.

EPRIUS, nomen nov.

Epeus, anteà, ii. p. 601 (Feb. 1901).

The name *Epeus* is preoccupied in Arachnida (Peckham, 1885), and we therefore change it to *Eprius*.

1. **Eprius veleda**.

Epeus veleda, anteà, ii. p. 601, t. 103. ff. 21-23.

ERRATA ET CORRIGENDA.

Page	Line	
16	36	for <i>angustulæ</i> read <i>augustulæ</i> .
22	21	the locality Coban (<i>von Turckheim</i>) is in Guatemala and should be placed before HONDURAS.
45	18, 19	for <i>azurinus</i> read <i>azurina</i> .
47	9	for ♂ read ♀.
48	30	after <i>rhodope</i> add sp. n.
49	24	for <i>Braugas</i> read <i>Brangas</i> .
53	10	after <i>cambes</i> add sp. n.
67	8	before Tab. LVI. insert <i>T. nicæe</i> ,
73	15	for Cubilwitz read Cubilguitz.
96	33	after figg. 12, 13, ♂, insert ; 14, ♀.
98	1	before Tab. LVIII. insert <i>T. hecale</i> ,
108	5	for <i>Polyomatus</i> read <i>Polyommatus</i> .
120	16, 27	for <i>E.</i> read <i>C.</i>
120	34	for ♂ read ♀.
123	33	for <i>Eucides</i> read <i>Eueides</i> .
128	37	for <i>Daptoneura</i> read <i>Daptonoura</i> .
138	28	for <i>P.</i> read <i>D.</i>
163	4	for Lefebvre read Lucas.
167	15	for <i>lucilla</i> read <i>leucilla</i> .
181	25	} for <i>dione</i> read <i>deione</i> .
182	5	
190	5	for <i>polydamus</i> read <i>polydamas</i> .
190		between lines 5 and 6 add the heading to the genus :
		PAPILIO.
		<i>Papilio</i> , Linn. Syst. Nat. i. 2, p. 744 (1767).
203	11	for <i>munitor</i> read <i>numitor</i> .
254	5, 6	for <i>Pyrropyga</i> read <i>Pyrrhopyga</i> .
265	8	for <i>Proteides</i> read <i>Phocides</i> .
268	10	after t. 99 add (<i>O. felderi</i>).

Page	Line	
272	25	for <i>Papilo</i> read <i>Papilio</i> .
311	18	for Vera Cruz read Tamaulipas.
336	34	} for <i>Phædinus</i> read <i>Thorybes</i> .
337	3	
337	39	for <i>amplion</i> read <i>amphion</i> .
340	8, 24	for <i>Spathalepia</i> read <i>Spathilepia</i> .
343	5	for Guatemala read S. Mexico.
356	9	for <i>Pythonides amaryllis</i> , Staud., read <i>Ate amaryllis</i> (Staud.).
364	7	for <i>chalcas</i> read <i>calchas</i> .
368	16	for <i>nyctimene</i> read <i>nyctineme</i> .
376	7	for <i>Leuchochitonia</i> read <i>Leucochitonea</i> .
382	34	for Paragua read Paraguay.
387	21	for no tuft read a small tuft.
395	1	for <i>caliginea</i> read <i>cœliginea</i> .
395	2	for <i>Achlyodes caliginea</i> read <i>Hesperia cœliginea</i> .
396	2	after <i>simplex</i> add sp. n.
403	13	for from a specimen of which read and from a specimen of <i>M. hemes</i> .
416	5, 6	for <i>Pterygospidia phagæsia</i> read <i>Pterygospidea phagesia</i> .
417	17	for <i>ruptifascitus</i> read <i>ruptifasciatus</i> .
440	34	add after the asterisk <i>Zopyrion evenor</i> , sp. n.
452	22	for <i>Carcharodes</i> read <i>Carcharodus</i> .
459	21	for <i>ægiades</i> read <i>ægides</i> .
482	39	for <i>H.</i> read <i>Pamphila</i> .
563	12	before Tab. C. insert <i>Mnasinous atheas</i> ,
656	1	for <i>antinoe</i> read <i>antonoe</i> .
659	2	for <i>epinephile</i> read <i>epinephele</i> .
732	30	for <i>Johannis</i> read <i>Joannis</i> .

INDEX.

[Names in small capitals refer to Families, &c.; those in roman type to the chief reference to each species included in the work; those in italics to species incidentally mentioned, synonyms, &c.]

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